

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF TEXAS  
FORT WORTH DIVISION

5 UNITED STATES OF AMERICA, ) CASE NO. 4:21-cr-00005-0-1  
6 Government, )  
7 VS. ) FORT WORTH, TEXAS  
8 THE BOEING COMPANY, )  
9 Defendant. ) AUGUST 5, 2022  
 )  
 ) 9:00 A.M.

VOLUME 1 of 2  
TRANSCRIPT OF EVIDENTIARY HEARING  
BEFORE THE HONORABLE REED C. O'CONNOR  
UNITED STATES DISTRICT COURT JUDGE

15 A P P E A R A N C E S :

FOR THE GOVERNMENT: CHAD MEACHAM  
UNITED STATES ATTORNEY  
NORTHERN DISTRICT OF TEXAS  
1100 Commerce Street, Third Floor  
Dallas, Texas 75249

CORY JACOBS  
ASSISTANT CHIEF UNITED STATES ATTORNEY  
CRIMINAL DIVISION, FRAUD  
1400 New York Avenue, NW  
Washington, D.C. 20005  
Telephone: 202.616.4994

1

## 2 APP E A R A N C E S:

3 FOR THE MOVANTS: PAUL CASSELL  
4 SJ QUINNEY COLLEGE OF LAW AT THE  
UNIVERSITY OF UTAH  
5 UTAH APPELLATE PROJECT  
383 S. University  
Salt Lake City, Utah 84112  
6 Telephone: 801.585.52027 ERIN APPLEBAUM  
8 KREINDLER & KREINDLER, LLC  
485 Lexington Avenue, 28th Floor  
New York, New York 10017  
9 Telephone: 212.972.943210 TRACY BRAMMEIER  
11 CLIFFORD LAW OFFICES, P.C.  
12 120 N. LaSalle Street, 36th Floor  
Chicago, Illinois 6060213 CHASE HILTON  
14 BURNS CHAREST, LLP  
900 Jackson Street, Suite 500  
Dallas, Texas 75202  
15 Telephone: 469.914.761016 FOR BOEING COMPANY: BENJAMIN HATCH  
17 BRANDON SANTOS  
18 ELISSA BAUR  
19 McGuirewoods, LLP  
800 E. Canal Street  
Richmond, Virginia 23219  
Telephone: 804.698.219420 PATRICK HANEY  
21 KIRKLAND & ELLIS, LLP  
1301 Pennsylvania Avenue N.W.  
22 Washington, D.C. 20004  
Telephone: 202.239.592123 IAN HATCH  
24 WICK PHILLIPS GOULD & MARTIN, LLC  
100 Throckmorton Street, Suite 1500  
25 Fort Worth, Texas 76102  
Telephone: 480.375.8992

1		I N D E X
2		
3		
4	<u>PLAINTIFFS' WITNESS:</u>	
5	CHRISTOPHER KEYES -	
6	Direct Examination by Mr. Cassell.....	13
7	Cross-Examination by Mr. Jacobs.....	93
8	Cont'd Cross-Examination by Mr. Jacobs.....	116
9	Cross-Examination by Mr. Haney.....	145
10	Redirect Examination by Mr. Cassell.....	171
11	Reporter's Certificate.....	200
12	Word Index.....	201
13		
14		E X H I B I T S
15	<u>PLAINTIFFS' EXHIBITS:</u>	
16	Exhibit 1 - Mr. Keyes' Expert Report.....	13
17	Exhibit 2 - KNKT Annex 13 Report.....	57
18	Exhibit 3 - Ethiopian Interim Report.....	68
19	Exhibit 4 - Final House Committee Report.....	74
20	Exhibit 5 - Email.....	82
21	Exhibit 6 - Email.....	82
22	Exhibit 7 - FAA CANIC Report.....	91
23	Exhibit 8 - FAA CANIC Report.....	91
24	Exhibit 9 - FAA CANIC Report.....	91
25	Exhibit 10 - Press Release.....	93

## 1 P R O C E E D I N G S

2 AUGUST 5, 2022

3 oOo

4 THE COURT: All right. This is Case  
5 No. 4:21-cr-05, United States v. The Boeing Company.

6 So who do we have? You are here representing?

7 MR. CASSELL: Paul Cassell.

8 THE COURT: And who else do you have here?

9 MS. BRAUMMEIER: Tracy Brammeier, your Honor.

10 MS. APPLEBAUM: Erin Applebaum.

11 MR. HILTON: And Chase Hilton.

12 THE COURT: Very good.

13 MR. CASSELL: And with the Court's permission,  
14 your Honor, I want to introduce Zekarias Shenkuh, whose  
15 brother, Mulugeta Shenkuh, was killed in the crash, and has  
16 traveled here today.

17 THE COURT: Thank you for being here.

18 And do you have your witness?

19 MR. CASSELL: We do have our witness.

20 THE COURT: Let's go ahead and get your witness up  
21 here while we let everyone else identify here.22 MR. HATCH: Good morning, your Honor. Ben Hatch,  
23 McGuireWoods, on behalf of The Boeing Company.24 MR. HANEY: Patrick Haney from Kirkland & Ellis  
25 for Boeing.

1                   MR. SANTOS: Brandon Santos, McGuireWoods, for  
2 Boeing. Good morning, your Honor.

3                   MR. HATCH: Ian Hatch, Kirkland & Ellis.

4                   THE COURT: Good to see you, Ian.

5                   MS. BAUR: Elissa Baur.

6                   THE COURT: Very good.

7                   MR. JACOBS: Cory Jacobs with Chad Meacham and our  
8 paralegal, Katie Holbrook, for the United States. Good  
9 morning, your Honor.

10                  THE COURT: Thank you all for being here.

11                  Are you the witness?

12                  THE WITNESS: Yes, sir.

13                  THE COURT: Would you raise your hand, please, to  
14 be sworn?

15                  MR. CASSELL: Your Honor, if I could be heard just  
16 briefly, I have two preliminary issues that surfaced that  
17 might expedite today.

18                  THE COURT: Yes.

19                  MR. CASSELL: The first is we've just been  
20 informed that Boeing is intending to cross-examine witnesses  
21 in this case. In our view, the very narrow hearing today is  
22 to establish the standing of the families to receive their  
23 rights from the United States Department of Justice. Boeing  
24 has no interest in that narrow issue and lacks standing to  
25 be heard today.

1                   Of course, if the Court were to rule that the  
2 families are victims, and then remedies and other things  
3 might be in play, we would obviously agree Boeing could be  
4 heard. So, in our view, they have no standing to be heard  
5 today.

6                   I would point out, by the way, on the issue of  
7 victim status, all of Boeing's briefs have one sentence on  
8 that issue, and it says, "We agree with the government."

9                   So they have not established any separate  
10 interest. We believe it would significantly expedite  
11 today's proceedings if it was kept between the parties who  
12 have an interest, the government and the families.

13                  THE COURT: Okay. And did you have another point  
14 or --

15                  MR. CASSELL: The second point is we haven't --  
16 depending on who's participating, we still don't know what  
17 the issues are that are in dispute. We have provided, as  
18 your Honor knows, a very extensive proffer.

19                  We've provided three expert reports. I think many  
20 aspects in the proffer, many aspects in the victims' report  
21 aren't disputed, but nobody is talking to us about what is  
22 in dispute. If we could get some clarity on that point, I  
23 think we could expedite this hearing.

24                  THE COURT: Okay. Mr. Meacham, what do you say to  
25 all that?

1                   MR. MEACHAM: I'm going to defer.

2                   THE COURT: Whoever is taking the lead, what do  
3 you all say to that?

4                   MR. JACOBS: With respect to that first issue,  
5 your Honor, we would defer to The Boeing Company, although  
6 we do think the defendant in this case does have an  
7 opportunity to be heard and should be able to cross-examine  
8 whatever witnesses that Mr. Cassell would like to proffer to  
9 the Court.

10                  With respect to the second issue, I think at this  
11 point, we just need to wait and see what is presented.  
12 Obviously, Mr. Cassell, through his experts, intends to show  
13 that the crash victims were directly and proximately harmed  
14 as a result of the offense that was charged in the DPA. Of  
15 course, we dispute that fact, but we need to see exactly  
16 what comes out during their testimony.

17                  Although I would note, at least for the witness  
18 that's going to testify today, this witness, I anticipate,  
19 is going to take the position that, had the Aircraft  
20 Evaluation Group and the FAA had the complete dataset, that  
21 that would have impacted their training decision.

22                  We dispute that and are prepared to cross-examine  
23 the witness as to that particular conclusion today. As well  
24 as for the record, your Honor, just one other thing, we  
25 would note that it's our view that, although the witness

1 that is going to testify today is certainly well qualified  
2 as a pilot, certainly worked at the FAA, that that witness  
3 is not qualified to actually render the opinion that the FAA  
4 would have done something had they known more information.

5 We think that's beyond what this expert could  
6 testify to. And so he isn't actually qualified to testify  
7 to that particular opinion about what the FAA, the federal  
8 regulatory agency, would have done.

9 So in a way, we challenge this witness with  
10 respect to Daubert. We don't think that this witness is  
11 someone who's qualified to actually render the particular  
12 opinion that he's prepared to give today. That's our  
13 position.

14 Thank you, your Honor.

15 THE COURT: Okay. I will hear from him and take  
16 that issue up at the end --

17 MR. JACOBS: Thank you.

18 THE COURT: -- the last issue you pointed out.

19 MR. JACOBS: Thank you.

20 MR. HATCH: Thank you, your Honor. As to the  
21 first issue about our participation, I'm surprised by  
22 Mr. Cassell's position on that.

23 As the Court knows, we briefed every stage of  
24 these issues. We are a party to this case, and these  
25 proceedings directly affect our interests. I think, from a

1 fundamental due-process standpoint, we have the right to  
2 cross-examine witnesses who are presented in a case, the  
3 relief of which directly impacts our client, the requested  
4 relief, which would be to undo the DPA in the agreement and  
5 to take other actions that directly affect our interest.

6                   On pages 2 of 5 on our response to the motion, we  
7 agree with the government's assessment that the movants do  
8 not need the CVRA definition and have standing, and we  
9 adopted their reasons for that and stated that the request  
10 could be denied on that basis alone.

11                  And I believe in his response at Docket 65, on  
12 page 10 at least, Mr. Cassell has acknowledged our joining  
13 in arguments in that regard as to the government. So we  
14 have presented these arguments. The issues directly affect  
15 our interest.

16                  I will say to the Court, like Mr. Jacobs, we  
17 respectfully don't believe that this expert could meet the  
18 Daubert standard.

19                  Our intention would be for cross-examination,  
20 certainly, to go after the government and to reduce our  
21 cross-examination so it's not repetitive or duplicative of  
22 the government.

23                  And with the Court's permission, we could  
24 certainly ask questions on the front end about the Daubert  
25 standard, but we're also prepared to reserve all those. If

1 the Court understands we are objecting on Daubert grounds,  
2 we can reserve those for a unitary cross at the end.

3 THE COURT: What do you say, though, to  
4 Mr. Cassell's argument that you're not affected at all,  
5 whether they meet the standard under the CVRA of the  
6 victim -- crime victim, I should say, under CVRA, or not,  
7 has no effect on The Boeing Company?

8 MR. HATCH: Respectfully, your Honor, it does  
9 affect us. Because, in litigation, in my experience, you  
10 don't part -- what they have to do to the movants to  
11 establish the relief they're requesting, as the Court, I  
12 think, has laid out in its recent opinion, is first  
13 establish standing under the CVRA, then, presumably  
14 establish a violation, and then establish an appropriate  
15 remedy.

16 That is all part and parcel of the motions that  
17 they filed to which both we and the government have  
18 responded as parties in this case. It's part of their case  
19 to obtain relief that directly affects my client.

20 THE COURT: Right. And I guess -- and I  
21 understand that -- I guess what I'm wondering, though, is  
22 that, if they do not meet the definition of crime victim in  
23 the CVRA, you're in the same position you were in -- you  
24 have been in all along.

25 If they do meet the definition of crime victim

1 under the CVRA, and that's all I'm determining, you're still  
2 in the same position you have been in since the case has  
3 begun, because there's nothing -- on that narrow issue,  
4 there's nothing that Boeing has to do differently, whether  
5 they meet the definition or don't meet the definition. I  
6 think that's the argument that he's making.

7                   And then what I understand him to say is, if I  
8 were to find that they are -- that they do meet the  
9 definition, and then I were to conclude we should consider  
10 what -- if they do meet the definition, if I were to  
11 conclude, okay, what should we do about the agreement?  
12 Should we set it aside? Should we say too much time has  
13 passed? Whatever.

14                   Then your interests are directly affected such  
15 that you should be a full participant in any of those  
16 hearings and present evidence, arguments, and that sort of  
17 thing. I think that's what his argument is.

18                   And so, as it relates to the first thing -- so  
19 there's two steps. As it relates to the first step, he's  
20 saying you really ought not be able to participate and  
21 cross-examine his witness on step one.

22                   MR. HATCH: Yes. And certainly, your Honor, under  
23 the CVRA, The Boeing Company has, as I understand the  
24 statute, no direct obligation to a crime victim. That is an  
25 obligation imposed on the government.

1                   But here -- and, certainly, if you're in, say, a  
2 civil case where there are multiple defendants and an  
3 argument is presented that would only affect one defendant,  
4 that might be one thing. But in this case, the motions that  
5 are filed are motions that request relief that directly  
6 affects my client, regardless of whether -- the fact that we  
7 didn't commit a violation, we couldn't commit a violation,  
8 that is what the relief is. It directly affects my client,  
9 undoing the DPA.

10                  This is one of the elements that they have to  
11 establish to get to that relief. So I think that's where I  
12 see it affecting my client is that the Court is working  
13 through those elements that they have to establish the first  
14 standing.

15                  If they do not have standing, then the relief  
16 they're requesting against my client ought not be granted.  
17 If they do have standing, then they will proceed to argue  
18 for other aspects of what they need to establish to  
19 establish it. So that's the impact on my client.

20                  THE COURT: Okay. Very good. I'm going to let  
21 you ask some questions after the government. We need to get  
22 started.

23                  So let's get your witness on.

24                  MR. HATCH: Thank you, your Honor.

25                  MR. CASSELL: All right. The families call

1 Christopher Keyes.

2 THE COURT: Yes. Thank you.

3 Would you raise your hand to be sworn.

4 (The oath was administered.)

5 THE WITNESS: I do.

6 THE COURT: Please come up here and have a seat,  
7 sir.

8 MR. CASSELL: And, your Honor, to speed things up,  
9 at this time I'm going to offer Families' Exhibit 1, his  
10 expert report, which I believe both sides have previously  
11 received. It's been filed.

12 THE COURT: Exhibit 1 will be admitted into  
13 evidence.

14 (Exhibit 1 was admitted into evidence.)

15 DIRECT EXAMINATION

16 BY MR. CASSELL:

17 Q. If I might briefly approach?

18 All right. Good morning, sir. Could you state  
19 your name for the record, spelling your last name, please?

20 A. Christopher Keyes. K-e-y-e-s.

21 Q. And I've handed to you what's been accepted as  
22 Families' Exhibit 1. Do you recognize that document there?

23 A. I have Exhibit 2.

24 Q. It's funny, yeah, it's Exhibit 2 in our proffer to  
25 the Court, but for purposes of today's hearing, I will be, I

1 guess somewhat confusingly, referring to it as Exhibit 1.

2 So if you flip into the second page of that  
3 document --

4 A. Yes, sir.

5 Q. -- do you recognize that document then?

6 A. Yes, I do.

7 Q. I wonder if I could direct your attention towards  
8 the back of that particular document. There's a section,  
9 and I think it's entitled "Qualifications," which describes  
10 your background.

11 A. Yes, sir.

12 MR. CASSELL: And, your Honor, since it sounds  
13 like qualifications are at issue here, I would be ready to  
14 simply proffer his CV.

15 THE COURT: Any objection?

16 MR. JACOBS: No objection.

17 MR. HANEY: No objection.

18 MR. CASSELL: Should I walk through? I mean --

19 THE COURT: However you want to. I mean, I've  
20 read -- skimmed through what you've submitted, but I will  
21 defer to you on what you -- you've heard what they're about  
22 to argue.

23 MR. CASSELL: Right. And I --

24 THE COURT: So you could go to that point, if you  
25 would like, but I don't want to limit you from presenting

1 anything that you feel like you need to present.

2 MR. CASSELL: Thank you, your Honor.

3 I'm wondering if we could handle it this way, I  
4 would propose that I simply dive into the substance of his  
5 testimony. They may then cross-examine about aspects, and  
6 if I could be granted latitude on reply to deal with that,  
7 that --

8 THE COURT: Yes.

9 MR. CASSELL: And again, maybe we would narrow  
10 down the issues in dispute.

11 THE COURT: Do you have any objection to that?

12 MR. JACOBS: No, your Honor.

13 MR. HANEY: No, your Honor.

14 THE COURT: All right. Thank you. Proceed.

15 BY MR. CASSELL:

16 Q. Mr. Keyes, I guess we can now go back to the main  
17 body of your report. And as I see it there, there are a  
18 number of opinions that you're planning to offer today?

19 A. Yes, sir.

20 Q. To set the stage for today's hearing, I would like  
21 to ask you four questions. First, is it your opinion, to a  
22 reasonable degree of aeronautical certainty that, had Boeing  
23 provided the AEG with the complete dataset with regard to  
24 MCAS for the 737 MAX, that AEG would have determined that  
25 the changes warranted a higher level of differences training

1 involving simulators?

2 A. Yes, they would.

3 Q. My second question is, is it your opinion today,  
4 to a reasonable degree of aeronautical certainty that, all  
5 operators, both domestic and foreign of the 737 MAX, depend  
6 on the FAA for appropriate and accurate information  
7 regarding aircraft that they approve and the training they  
8 recommend?

9 A. It is.

10 Q. My third question is, is it your opinion today to  
11 a reasonable degree of aeronautical certainty that, the act  
12 of withholding critical information regarding MCAS rendered  
13 the applicable sections of the 737 MAX aircraft flight  
14 manual and checklist unusable?

15 A. I believe so, yes.

16 Q. And my fourth question to set the stage is, is it  
17 your opinion today, to a reasonable degree of aeronautical  
18 certainty, that the lack of appropriate or incomplete MCAS  
19 training put every crew member and passenger on board every  
20 Boeing 737 MAX at an unwarranted risk for a catastrophic  
21 event every time they took off?

22 A. That is my opinion.

23 Q. All right. Well, with those opinions in mind --  
24 and I understand the parties may be challenging some issues  
25 about how you reached those opinions -- if I could direct

1 your attention to Appendix D in your report, which is, I  
2 believe, entitled "References"?

3 A. Yes, sir.

4 Q. And I kind of -- what I wanted to know again,  
5 since there appears to be a challenge to the basis for you  
6 reaching those opinions, let's walk through some of the  
7 items here.

8 I see Item 1 is a, "Final Committee Report  
9 Regarding the Design, Development, and Certification of the  
10 Boeing 737 MAX"?

11 A. Yes, that is on there.

12 Q. And could you briefly describe what that document  
13 is?

14 A. Basically, that was information gathered by  
15 staffers for Congress looking into the issue of the 737 MAX  
16 and their detailed report. I looked at various sections of  
17 it. Especially the training portion of that report.

18 Q. And my understanding is that the House Committee  
19 on transportation spent 18 months investigating the 737 MAX,  
20 collecting 600,000 pages of documents connected with that  
21 issue. Is that generally your understanding?

22 A. That is my understanding.

23 Q. Now, did you look at all 600,000 pages in reaching  
24 your opinions here?

25 A. No, I did not.

1           Q.    And I think you were mentioning there's a specific  
2 section that was of greatest interest to you?

3           A.    Training.

4           Q.    All right. And I think that's Chapter 7, if I  
5 recall correctly. Does that sound about right?

6           A.    That sounds about right. I wasn't sure.

7           Q.    There were also a number of emails that the House  
8 Committee collected in regard to the crashes in the 737. If  
9 somebody presented an email to you, would you use that in  
10 part of determining your decision?

11          A.    If it was determining to the subject, I would.

12          Q.    So, for example, if today attorneys for the  
13 government or attorneys for Boeing wanted to show you some  
14 emails or information in that report, would you be glad to  
15 look at that and see whether that alters your opinions in  
16 any way?

17          A.    Yes, I would look at them.

18          Q.    All right. I want to jump down to, I think it's  
19 Item 3 there. You mention that you looked at something  
20 called "Republic of Indonesia Final Aircraft Accident  
21 Investigation Report regarding the Boeing 737 MAX, Flight  
22 610, on October 29th, 2018." Do you see that?

23          A.    Yes, sir.

24          Q.    Could you tell the Court what that document is?

25          A.    Basically, that is an accident report. It

1 followed the basic format of ICAO, Annex 13, for the  
2 development and presentation of an accident report. It  
3 covered all of the usual topics, from history of the  
4 aircraft, history of the pilots, communications, weather,  
5 airworthiness of the aircraft, things of that nature. What  
6 their training had been, survivability.

7 Q. So in the course --

8 I believe according to your CV, you were with the  
9 FAA for 24 years?

10 A. I was.

11 Q. In those 24 years, did you ever see an accident  
12 report of this type in the course of your duties?

13 A. Yes, sir.

14 Q. Roughly how many accident reports would you have  
15 reviewed in the course of your duties?

16 A. Hundreds.

17 Q. Let's move on to the next item then. I see here  
18 Item 4. There's a document entitled, "Federal Democratic  
19 Republic of Ethiopia, Ministry of Transport, Aircraft  
20 Accident Investigation Bureau Interim Report regarding  
21 Ethiopian Airlines, 737 MAX, Flight 302." Do you see that  
22 there?

23 A. Yes, sir.

24 Q. And could you tell us what that document is?

25 A. Basically, it's the same as the preceding one. It

1 was a preliminary report in a basic ICAO type of format for  
2 accident reports. And starting with the synopsis and the  
3 history of the flight, the crew members, aircraft, air  
4 worthiness, survivability, weather, communications, and went  
5 through most of that, yes.

6 Q. So that's described as an "interim report."

7 Have the Ethiopian authorities issued a subsequent  
8 report since then?

9 A. Not to my knowledge.

10 Q. And is that the single best source document if  
11 somebody wanted to get to the bottom of why the Ethiopian  
12 Airlines, Flight 302, crashed on that particular day?

13 A. More than likely, yes.

14 Q. All right. And we will have an occasion to talk a  
15 little bit more about that.

16 But then I noticed that further on down, you  
17 reference as Item 5 of the materials, you considered various  
18 provisions in Title 49 of the U.S. Code?

19 A. Yes, sir.

20 Q. Now, you're not an attorney, as I understand it?

21 A. No way.

22 Q. But did you have occasion, in the course of your  
23 24 years of working at the FAA, to analyze how federal  
24 statutes might interplay with some of your duties?

25 A. I did.

1           Q. And was Title 49 one of those statutes that you  
2 worked with frequently?

3           A. It would come into my realm of responsibility  
4 where I would have to review that and see if it was  
5 applicable in certain cases, either in an accident or a  
6 violation or an incident.

7           Q. All right. And now, the next item here is Item 6.

8 It's 14 CFR.

9           MR. CASSELL: It occurs to me, by the way, your  
10 Honor, we have an extra copy of the report, if that would  
11 be --

12           THE COURT: I would like that, yes.

13           MR. CASSELL: I apologize.

14           THE COURT: No. I should have brought one.

15           MR. CASSELL: With the Court's permission?

16           THE COURT: Thank you.

17 BY MR. CASSELL:

18           Q. All right. So I'm looking at -- this is an  
19 Appendix B to Mr. Keyes' report which references Item 6.  
20 There's a reference to 14 CFR, and that's Code of Federal  
21 Regulations, and then various parts are listed there.

22           Again, could you just very briefly, for the Court,  
23 describe what those various parts of 14 CFR are.

24           A. As indicated, they're -- Part 21 talks to the  
25 certification process for products and articles.

7 Q. Could you tell us a little bit more about Part 60?

8 What kinds of issues does that relate to?

9           A.    That talks about the minimum qualifications to --  
10           for a training center or an agency to use a simulator in  
11           training. Pilots that are trained in accordance with  
12           federal regulations, there are certain minimums that they  
13           have to meet.

14 There are different levels of simulators. The FAA  
15 has a simulator team that travels around the world and  
16 certifies, or certifies, simulators. And they also do  
17 recurrent certification to ensure that simulators are still  
18 meeting the minimum standard for use in airman  
19 certification.

20 Q. Now, Item 7, just briefly, what is that document  
21 there -- or that item, I guess?

22           A.    That is FAA Order 2150.3C.  It's Federal Aviation  
23           Administration Compliance Enforcement Program.

24 Q. And I see several other orders there of a similar  
25 nature. I think I can tell sort of from the title the

1 general topics. Would that be correct?

2 A. Yes.

3 Q. Item 12 here is a, "Flight Standardization  
4 Board" -- let me just stop right there.

5 "Flight Standardization Board," is there an  
6 acronym?

7 A. FSB.

8 Q. So this is an FSB report for The Boeing Company  
9 737. I take it you had an opportunity to review the current  
10 737 report?

11 A. I did.

12 Q. Roughly how long is that report, or what does it  
13 look like?

14 What are the general sort of subjects that are  
15 covered there?

16 A. The subjects that would be covered there would be  
17 the process and the procedure that the people reviewing  
18 training programs would use to review a manufacturer's  
19 training program, how they would apply regulations.

20 In other words, how did they -- did they meet the  
21 minimum requirement of the regulations? And they would make  
22 a determination of required -- minimum required training for  
23 the industry to use for certification of pilots and what an  
24 operator or manufacturer would have to do -- or correction,  
25 an operator would have to do in order to meet the

1 requirements of the report to have their pilots properly  
2 trained and meet the requirements there and get approval  
3 from their principal operations inspector to use that  
4 training program.

5 Q. And we mentioned -- or, I'm sorry, you mentioned a  
6 moment ago you looked at the current report.

7 I take it you didn't look at the actual 737 MAX  
8 report that was in effect on the date of the crash?

9 A. I did not have access to that.

10 Q. Did you have access to descriptions of that report  
11 in other documents that you reviewed?

12 A. I came across numerous references to that.

13 Q. And did that give you a sufficient basis, in your  
14 view, to reach opinions regarding the reports?

15 A. It did.

16 Q. And could you give the Court an example of the  
17 kind of document that you were able to look at describing  
18 the FSB report that existed back when the crashes occurred?

19 A. Well, there were several documents. The accident  
20 reports of Lion Air and Ethiopian Air made reference to  
21 training.

22 The committee report made reference to training.  
23 Some of the other documents that I went through made  
24 references back to training, and I would go back to the FSB.

25 Q. And the documents you just referenced, the

1 accident reports and so forth, are those the kinds of  
2 documents that experts, trying to offer the kinds of  
3 opinions that you're offering here today, would consult in  
4 offering their opinions?

5 A. Yes.

6 Q. And then the last item here, it looks like there's  
7 some ICAO documents. Again, for the benefit of the Court, I  
8 know it has been involved in a number of aviation matters  
9 over the last year, but just briefly, "ICAO," what is that  
10 exactly?

11 A. The International Civil Aviation Organization.

12 Q. All right. And you looked at some of the annexes  
13 that were relevant to the matters here?

14 A. Yes, sir.

15 Q. Okay. Well, we'll have an opportunity to go into  
16 more detail in how some of these documents interact with  
17 your opinions, but I wanted to get right to it.

18 I think one of your opinions is that, "All  
19 operators, domestic and foreign, of the 737 MAX depend on  
20 the FAA for appropriate and accurate information regarding  
21 aircraft they approve."

22 I want to direct your attention to that particular  
23 opinion. And the first thing I want to do in connection  
24 with that is -- I think you've looked also, as part of  
25 preparing for the hearing, at a Statements of Fact that the

1 government and Boeing prepared?

2 A. Yes, I did.

3 Q. I think it's got 50 some-odd paragraphs in there?

4 A. Yes, I'm familiar with it.

5 Q. Are the opinions you're offering today consistent  
6 or inconsistent with those Statements of Fact?

7 A. It would be consistent with those facts.

8 Q. Now, in particular -- I know the Court doesn't  
9 want us to repeat everything that's in the Statement of  
10 Facts, but I just want to set the stage by directing your  
11 attention to the Statement of Facts, paragraph No. 10.

12 Let me just read that to get that into the record  
13 for purposes of this morning's hearing.

14 It says that, "The conclusion of the FAA's  
15 evaluation of the new version of the airplane, the FAA AEG  
16 published an FSB report. Among other things, the FSB report  
17 contained relevant information about certain airplane  
18 systems and parts that the aircraft manufacturer was  
19 required to incorporate into airplane manuals and pilot  
20 training materials for all U.S.-based airlines that would  
21 fly the airplane."

22 Are you familiar with that Statement of Facts?

23 A. Yes, I am.

24 Q. And so, let's just drill into that a little bit.

25 There was an FSB report applicable, then, to the

1 737 MAX?

2 A. There was.

3 Q. And paragraph 10 indicates that, "This material  
4 would have been then incorporated into the training  
5 materials," and -- I'm sorry -- "aircraft manuals and  
6 training materials for all U.S.-based aircrafts," U.S.-based  
7 aircraft, I'm sorry.

8 Could you explain a little bit about how that gets  
9 conveyed to U.S.-based airlines?

10 I shouldn't say "aircraft." I meant to say  
11 "airlines."

12 A. Yes. The FAA, through the FSB, has done an  
13 evaluation of a -- either a new airplane or a variant of an  
14 existing aircraft. They depend on -- a lot on the  
15 information provided by the manufacturer to make a  
16 determination of what type of training would be required for  
17 that new variant.

18 They then take that information and they compile a  
19 master differences rating table, which the operator would  
20 look at -- the airlines would look at, and they would make a  
21 determination of how best they would incorporate that into  
22 their training program.

23 Incorporating that into their training program,  
24 then, would consist of a change to their training program.  
25 The principal operations inspector, the individual who

1 has -- is kind of the manager of that certificate for the  
2 FAA, would take a look at that revision to the training  
3 program.

4 He would then look at the FSB himself and look at  
5 that report and ensure that the operator has included all of  
6 the information required from the FSB into the new training  
7 program or the revised training program.

8 If he has done -- they have done so, then the POI  
9 would put his stamp of approval on that change to the  
10 training program, and it would go in and begin -- they would  
11 begin training the pilots on this new variant.

12 Q. All right. So that was with respect to U.S.-based  
13 airlines.

14 Would the FSB report also be available to  
15 foreign-based airlines?

16 A. Yes, it would.

17 Q. And how would it be made available to a  
18 foreign-based airline?

19 A. It's a published document that's out there on the  
20 Internet. It's available to anybody. The FAA knows -- and  
21 the manufacturer would have a list of all of the customers,  
22 everybody that owned that make and model of aircraft, and  
23 the FAA would use their master list of who has the aircraft,  
24 what airlines they're operating under, to send out  
25 notification that there's been a change to the FSB. And

1       they would then go to the foreign country, and they could  
2       make their determination on that.

3               The FAA is kind of considered one of the more  
4       influential authorities on these matters. And in many  
5       cases, foreign countries will look to the FAA for that  
6       guidance.

7               In the case of an FSB, the foreign operator can  
8       take that information and incorporate it into their training  
9       program, in accordance with their local or their national  
10      guidelines on how they conduct training.

11               And it kind of helps them along because they don't  
12       have to reinvent the wheel. They don't have to go in and  
13       dig all that information out. It's presented to them, for  
14       the most part, because the FAA and the United States  
15       aviation industry is kind of considered one of the world  
16       leaders in aviation. People look to it to have confidence  
17       that that information is good, and they will take and  
18       incorporate it into their programs.

19               Q.    You mentioned that foreign countries generally  
20       might just adopt the FSB report. Are there particular types  
21       of countries or aviation authorities that are probably more  
22       inclined, in your view, to simply follow the FAA  
23       recommendations?

24               A.    I would think that a country that did not quite --  
25       have quite the resources, either in personnel experience or

1 financial resources, might lean more on the FAA for  
2 information, as opposed to having to spend the time to  
3 develop it on their own.

4 Q. Now, you've been describing how American decisions  
5 by the FAA would be transmitted or perhaps followed by  
6 foreign-based airlines. Is that something that's a top  
7 secret piece of information, or is that something that's  
8 generally known in the aviation industry?

9 A. It's generally known.

10 Q. And are you familiar with a company known as The  
11 Boeing Corporation?

12 A. I am.

13 Q. And is this the kind of information that would  
14 have reached The Boeing Corporation in the course of its  
15 normal affairs of building aircraft and selling them to  
16 customers?

17 A. Oh, yes.

18 Q. I think I saw in your report that you mentioned  
19 that the FSB report is "a single-source document" that a  
20 foreign-based airline could look to.

21 Could you help me understand what you mean by  
22 "single-source document"?

23 A. It's a primary document that has gone into the  
24 differences of an aircraft, different variations. They've  
25 done all the legwork. They've worked closely with the

1 manufacturer. In some cases, they actually get into the  
2 simulator and test it out and they make that determination.

3 And once again, that's public knowledge. It's not  
4 top secret. Anybody can have that. So it would be one  
5 place to go. I'm not aware of anyplace else that would have  
6 that information or develop that information.

7 Q. So a country like Indonesia, when they buy an  
8 American aircraft, are they going to, as you say, reinvent  
9 the wheel and start from scratch on these types of issues?

10 A. No. They're going to take the information that's  
11 available to them. I'm sure the manufacturer is going to  
12 provide a lot of technical support in the way of  
13 airworthiness. Any training that needs to be done for their  
14 people, they would do that.

15 The FSB comes in there when they start talking  
16 about the training for pilots. And that's where the  
17 determination is made there.

18 Q. Would it be fair to say, when foreign countries or  
19 foreign operators are looking at this information from the  
20 FAA, that they would be expecting that it would be  
21 appropriate and accurate information?

22 A. Yes.

23 Q. And you were mentioning the FAA is regarded as one  
24 of the preeminent authorities. I'm assuming that one of the  
25 reasons Americans can be proud of the FAA is, generally, the

1 information they're transmitting is appropriate and  
2 accurate?

3 A. Yes.

4 Q. All right. Well, let me turn now to the next  
5 opinion that I want to talk about. We will have a few  
6 more -- we will get into some specifics when we start  
7 looking into the specific crashes. But right now, let's  
8 kind of look at a general level.

9 The next opinion I want to talk about is that,  
10 "The act of withholding critical information regarding  
11 MCAS" -- and just for the record, I think everybody at this  
12 point is well aware that MCAS is Maneuvering Capabilities  
13 Augmentation System, a software system in the 737 MAX --  
14 "rendered the applicable sections of the 737 MAX aircraft  
15 flight manual and checklist unusable."

16 Did you see in the materials you reviewed  
17 references to the flight manuals and checklists that existed  
18 on the 737?

19 A. I did.

20 Q. And I also was able to say what MCAS means. I'm  
21 assuming that you know a bit about MCAS at this point in the  
22 case?

23 A. I do.

24 Q. What did you do to get ready to testify today  
25 about issues relating to MCAS?

1           A. I looked at the material that I could bring up. I  
2 got online, Googled "MCAS," looked at it, reviewed it, got a  
3 basic feel for what it is.

4           Q. Now, did you see anything about MCAS in either of  
5 the accident investigation reports?

6           A. No. I don't recall that they specifically  
7 mentioned MCAS, but they may have.

8           Q. I'm sorry. I was talking about -- so, for  
9 example, in the Indonesian accident report, did you look at  
10 the section that they had dealing with how MCAS operated in  
11 that particular accident?

12          A. Yes. They had detailed reports.

13          Q. And I take it you looked at that section in the  
14 Indonesian --

15          A. Yes.

16          Q. Similarly, with the Ethiopian report?

17          A. Yes.

18          Q. All right. Now, I would like to direct your  
19 attention to -- again, not to repeat, but just to set the  
20 stage -- "Statement of Facts," paragraph 43, which says,  
21 "Based on Boeing's misleading statements, half-truths, and  
22 omissions to the FAA AEG about MCAS, and in reliance on  
23 those statements and omissions, the FAA AEG agreed to delete  
24 all information about MCAS from the 737 MAX, FSB report."

25           Are you aware of that statement?

1           A. Yes, I am.

2           Q. Could you help explain what would then be the  
3 ramifications of deleting -- what was it -- "all information  
4 about MCAS from the FSB report"?

5           A. If the information pertaining to MCAS is deleted  
6 or withheld or not forwarded to the AEG for evaluation, the  
7 AEG is going to make certain determinations based on  
8 internal documents on how they go about evaluating  
9 information. And they are going to probably -- in that  
10 case, they would apply incorrect standards to that  
11 information and, as a result, come up with an erroneous  
12 determination as to what training was needed.

13           That would then create a cascading effect where  
14 the information would not be in the flight manual. The  
15 information that's critical to it would not be included in  
16 the checklist. It would not have been included in training.

17           Consequently, it would be a trickle down.  
18 Everybody that needed -- especially the crew that needed to  
19 know the information or get trained on it would not have  
20 access to that information or have been trained on it.

21           Q. And this may be an obvious point, but I think to  
22 be clear in the record, why would pilots want this kind of  
23 information in the course of flying aircraft that hold  
24 hundreds of people on it?

25           A. Well, the whole idea of training is to educate the

1 crews on all of the systems of the aircraft. Each carrier  
2 will have a different philosophy on how deep they want to go  
3 into the systems of the aircraft.

4                   But as a pilot, they need to know about the  
5 systems on their aircraft, how they work and, if they  
6 malfunction, how to react properly to that malfunction.

7                   Q.    This sounds like it could be a life-or-death  
8 issue?

9                   A.    Depending on the system, it could be, yes.

10                  Q.    Let's go to Statement of Facts, paragraph 46.  
11                  It's similar, but I think it's important to underscore this  
12 one.

13                  Paragraph 46 in the Statement of Facts says,  
14 "Because of Boeing's intentional withholding of information  
15 from the FAA AEG, the final version of the 737 Max FSB  
16 report lacked information about MCAS. And relevant portions  
17 of this 737 MAX, FSB report were materially false,  
18 inaccurate, and incomplete."

19                  Could you explain how the report would have been  
20 "materially false, inaccurate, and incomplete"?

21                  A.    I would characterize it as incomplete simply  
22 because they did not receive or have the appropriate  
23 information concerning certain facets of information.

24                  Q.    All right. And a moment ago you mentioned this  
25 trickle-down effect extending to flight manuals. I want to

1 build a record now a little bit about how aircraft flight  
2 manuals would be operating in this context.

3 My understanding -- and you're obviously the  
4 expert here, but my understanding is that over the last  
5 several decades, the FAA has required aircraft manufacturers  
6 to provide an approved aircraft flight manual for each  
7 aircraft that's certified?

8 A. Yes.

9 Q. And it seems like the aviation folks always want  
10 to use acronyms. So is there an acronym for aircraft flight  
11 manual?

12 A. "AFM."

13 Q. And have you seen AFMs in the course of your 24  
14 years with the FAA and your -- your other aviation  
15 endeavors?

16 A. I've seen many.

17 Q. Does this requirement for a flight manual apply to  
18 the Boeing 737 MAX?

19 A. It would.

20 Q. And who reviews the AFMs to make sure that they're  
21 appropriate?

22 A. There's several organizations within the FAA that  
23 participate in that review of the AFM because it addresses  
24 many issues, and not just issues that would affect the crew  
25 up in the front.

1                   There are a lot of other systems and pieces of  
2 equipment that they would look at. So it's kind of a team  
3 effort to look at the AFM and put it together, different  
4 organizations.

5                   Probably within Boeing, they would have different  
6 people that would add those pieces to it. And when the FAA  
7 got ahold of it, they would assign certain parts of it to  
8 certain specialities.

9               Q. All right. And then what -- can you just describe  
10 generally what an AFM would look like? I mean, what sorts  
11 of things are in a flight manual?

12               A. Basically, the AFM would describe all of the  
13 systems within the given aircraft in fairly -- in very much  
14 in detail.

15               Q. Now, if it's going to be in great detail, I'm  
16 wondering whether the pilots might want a slimmed-down  
17 version of the flight manual in certain circumstances?

18               A. They do. They came out -- operators usually  
19 create a company flight manual which, because of the bulk of  
20 the information and the quantity of the information, they  
21 pare it down and get the essentials out and basically put  
22 that in the company flight manual, and that is the  
23 information that a pilot can look at and use.

24               Q. I think you referred to it as a company flight  
25 manual, a CFM, the acronym that is commonly used?

1           A.    Yes.

2           Q.    Does the CFM have any impact on the safe operation  
3    of a commercial aircraft?

4           A.    Yes.

5           Q.    Could you explain how it could impact the safe  
6    operation of a commercial aircraft?

7           A.    Once the manual is approved, the operator gets a  
8    copy of it. The training people will take ahold of it, and  
9    they will go through it, and they would develop and  
10   formulate a training program based on the information they  
11   glean from that document.

12           Also from that document, they will develop their  
13   checklist. A checklist is very important. It's a federal  
14   aviation requirement that they provide check- -- that the  
15   operator provide a checklist and that the crew uses the  
16   checklist.

17           So much of the training and the checklists and CFM  
18   come out of that source document, the AFM.

19           Q.    I want you to assume that, as the Statement of  
20   Facts says, "Boeing provided incomplete and fraudulent  
21   information to the FAA about MCAS."

22           What cascading effect would that have on the CFM?

23           A.    Well, if the information was withheld and not  
24   included in the CFM when the training people started to  
25   review that document to develop a training program for it,

1 the training would be incomplete.

2                   Also, if there was no information about the faults  
3 for the MCAS system, there would not obviously be anything  
4 that would be put into the checklist that would help the  
5 crew to address an emergency situation or a non-normal  
6 situation with that system.

7                   Q. Now, you mentioned emergency situations. I'm  
8 assuming these documents are all of critical importance if  
9 the plane is becoming unstable or something along those  
10 lines?

11                  A. Yes.

12                  Q. Again, that would be a life-or-death situation  
13 potentially?

14                  A. It could be, yes.

15                  Q. You mentioned, too, that there are sometimes steps  
16 that are laid out for pilots to handle emergency situations.

17                  Are you familiar with something called a checklist  
18 in this context?

19                  A. Yes.

20                  Q. So I want to turn to the subject of pilot  
21 checklists on the Boeing 737 MAX. What would the checklist  
22 for a 737 MAX look like?

23                  A. It will vary from carrier to carrier. It will  
24 cover the essentials. It will cover normal operations,  
25 non-normal operations, and emergency operations. So you

1 will normally have three sections.

2                   It will address the various flight regimes from  
3 start to taxi, pre-takeoff, takeoff, climb, crews, descent  
4 before landing, landing, taxiing, shutdown, things of that  
5 nature. The more sophisticated the aircraft, the longer the  
6 checklist. And the simple single-engine airplane usually  
7 has one or two pages.

8                   But the checklists are -- once again, they are  
9 reviewed by the FAA. The principal operations inspector, he  
10 will look at that, and he will approve that based on the  
11 information he has gotten from those particular documents.

12                  Q. I want to focus you in on an emergency situation.  
13 How would a checklist promote safety in an emergency  
14 situation?

15                  A. It varies on the emergency. Some emergencies that  
16 arise do not permit the pilot the luxury of time to pull up  
17 his checklist and look at it.

18                  There are those emergencies where they have memory  
19 items that they have to act immediately in order to maintain  
20 safe flight.

21                  They go through training. They go through a  
22 ground school. And then they get into a simulator usually,  
23 they go through those memory items. Once they've completed  
24 the memory items, then they can pull up the checklist and go  
25 through the emergency checklist.

1                   And that will, number one, ensure that the memory  
2 items were all addressed. And then it usually goes on for  
3 some clean-up items that aren't that critical. You shut  
4 this engine down or you started that -- or charged that fire  
5 bottle or something.

6                   Then there are certain other steps that go on that  
7 are not as critical to safe flight, but are kind of what we  
8 call clean-up items, and they would use a checklist on that.

9                   Q.    Let me focus you in to an emergency that might be  
10 caused from what I will call, uncommanded MCAS activation.

11                  Was the Boeing 737 MAX, at the time of the  
12 Indonesia crash, provided with a checklist to tell the  
13 pilots what to do in such a situation?

14                  A.    They had a checklist for uncommanded pitch trims.

15                  Q.    What about uncommanded MCAS activation?

16                  A.    I did not recall seeing anything of that nature.

17                  Q.    And, in fact, because Boeing had provided  
18 incomplete and inaccurate information to the FAA, would it  
19 be fair to say that that would be one of the areas where the  
20 cascading effect you talked about would be in play?

21                  A.    Yes.

22                  Q.    I want to direct your attention now to Statement  
23 of Facts, paragraph 46. There's the second sentence in that  
24 agreed Statement of Facts, which again I'll just read for  
25 purposes of setting the stage here.

1                    "In turn, airplane manuals and pilot training  
2 materials for U.S.-based airlines lack the information about  
3 MCAS. And the relevant portion of these manuals and  
4 materials were similarly materially false, inaccurate, and  
5 incomplete as a result."

6                    Are you familiar with that Statement of Facts?

7                    A. I am.

8                    Q. And is your opinion consistent with that Statement  
9 of Facts?

10                  A. It is.

11                  Q. It mentions -- they stuck the words in "U.S.-based  
12 airlines" in that Statement of Facts. I am wondering about  
13 that.

14                  Wouldn't it be fair to say that, generally  
15 speaking, the same would be true for foreign-based aircraft?

16                  A. Yes.

17                  Q. And why would that be the case?

18                  A. They're operating a U.S.-manufactured aircraft,  
19 and basically the information about the systems, what  
20 training would be required, would be applicable to that  
21 aircraft regardless of what the country of registry would  
22 be.

23                  Q. All right. I want to turn now to -- and we'll  
24 have some more information about the two crashes in a  
25 moment, but let's talk generally about your next opinion.

1                   Your next opinion is, "Had the Boeing 737 FSB been  
2 provided with a complete dataset with regards to the MCAS  
3 for the 737 MAX, they would have determined that the changes  
4 warranted a higher level of differences training involving  
5 simulators."

6                   You're obviously familiar with your opinion on  
7 that.

8                   A.     Yes.

9                   Q.     Let me just ask you, in the course of your flying  
10 career, your FAA duties, your subsequent consulting, ever  
11 been exposed to issues surrounding flight simulators?

12                  A.     I have.

13                  Q.     Have you ever been in a flight simulator?

14                  A.     I have.

15                  Q.     Why don't you tell us a little bit about -- let's  
16 unpack your experience with flight simulators.

17                   What sort of the experience have you had with  
18 flight simulators?

19                  A.     I have trained as a pilot on numerous flight  
20 simulators. I worked with the -- I was one of the  
21 certification people for Semiflight over here in Dallas, and  
22 they were the first training center to be certificated under  
23 FAR Part 142.

24                  Q.     I'm sorry. You're going to have to unpack that  
25 for me a little bit. So they were certificated. Why don't

1 you explain exactly what that means.

2       A. At that point, the FAA determined with all of  
3 these simulators that were around the country, they needed  
4 to have kind of a standard for training, and they came up  
5 with the FAR 142 training centers.

6           We spent two years working with them to get them  
7 certificated as a 142 training center, flight safety. Many  
8 of other training centers, people that have simulators, are  
9 all under 142.

10           And as part of the certification, we had to -- I  
11 looked at a lot of the training, particularly for the Hawker  
12 aircraft, sat through all the ground schools, and then I  
13 went through and had to observe the simulator training to  
14 ensure that the simulator training was adequate and it met  
15 the standards and the objectives and completion standards  
16 for the training programs.

17           We also had to look at the simulator and  
18 coordinate with the National Simulator Team on the use of  
19 the simulator, especially with the Hawker.

20           The Hawker was a unique simulator in that it could  
21 be converted from an 800 to a 1,000, which are two different  
22 type ratings. And we had to work with the Semiflight to get  
23 them to develop a checklist for the conversion from the 800  
24 to the 1,000.

25           It started out at about eight or 10 hours. They

1 got it down to about a four-hour process. We had to go in  
2 and check the simulator, some basic functions, after each  
3 conversion. I was involved with that for the Hawker.

4 Q. Yeah, you mentioned you were involved in that. I  
5 just want to -- so the record is clear, you said, "We had to  
6 do this. We had to do that." Were you personally involved  
7 in these certification projects?

8 A. I was.

9 Q. And did you get a good understanding of aircraft  
10 simulators as a result of your involvement in the  
11 certification process?

12 A. I got a good introduction to it.

13 Q. I think also, in the course of your career, you  
14 were an aviation safety inspector, is my understanding?

15 A. Yes, sir.

16 Q. Did that involve any interactions with flight  
17 simulators?

18 A. Yes, it did.

19 Q. Could you tell me a little bit about what you did  
20 there?

21 A. As aviation safety inspector, I was a national  
22 resource for King Airs and for Hawkers. I went out and,  
23 either in an airplane or a simulator, I would administer the  
24 appropriate practical test for an airman to get a type  
25 rating or an additional rating or get currency in a

1           particular -- in 135, which is air taxi, if you will. And a  
2           lot of those were done in the simulator.

3           Q.     You mentioned you were a national resource. That  
4           was -- again, that was part of your duties at the United  
5           States government's FAA?

6           A.     Yes. As an FAA inspector, I was designated as a  
7           national resource.

8           Q.     Now, you mentioned this Hawker aircraft.  
9           Obviously, today's case involves a 737 MAX. Are any of the  
10          principles that you've been describing involving flight  
11          simulators in other cities and other planes applicable to  
12          the Boeing 737 MAX?

13          A.     Yes.

14          Q.     Could you describe briefly the similarities and  
15          processes that you see there?

16          A.     Basically, the approval process for training  
17          programs for the use of simulators, pretty much standard  
18          across, depending -- irregardless of what make and model  
19          aircraft it is.

20           The simulators have to meet certain minimum  
21          standards. And they have to have certain functions  
22          available to them so that they can adequately replicate  
23          certain situations for the pilot to react to as part of the  
24          testing and training programs.

25          Q.     Have you ever been inside a 737 simulator?

1           A.    Yes, I have.

2           Q.    Your opinions you're offering today, you believe,  
3           rest on this body of work that you've been describing here  
4           briefly?

5           A.    Yes.

6           Q.    The kinds of things that you have been describing,  
7           are those the kinds of things that experts who would want to  
8           offer opinions about appropriate levels of training would  
9           rely upon?

10          A.    I believe so, yes.

11          Q.    Well, let's now dive into some more specifics  
12          about training for the 737 MAX. I think you were telling us  
13          a little bit earlier about something called master  
14          difference requirements.

15           Could you explain for the Court how, when a new  
16          version of the 737, like the 737 MAX, comes online,  
17          differences between that aircraft and earlier aircraft would  
18          be assessed?

19          A.    The FAA would work with the manufacturer to  
20          determine what new -- or what differences exist between the  
21          old, or the previous variation, and the new variation.

22           They would analyze those differences and make a  
23          determination as to what type or what level of training  
24          would be required to provide pilots with sufficient  
25          information for them to satisfactorily operate the new

1 variation.

2                   The purpose of that was so the pilot that has  
3 never flown a 737 would get trained, and he would get a type  
4 rating on his certificate saying he can fly the 737.

5                   The training with the variants, differences  
6 training, allows the operator to provide differences  
7 training to the pilots, or the crew members, test them on  
8 it, and find them proficient.

9                   And that way, just doing the training on the  
10 variations, or on the differences, reduces or eliminates the  
11 necessity for them to have to go back and get type rated on  
12 a whole new airplane, which is -- you know, they're familiar  
13 with, could be 90 percent of it, 95 percent of it,  
14 75 percent. That's what the variation does. That's usually  
15 the differences. They will train you on that.

16                  Q. I don't want to repeat all the information that's  
17 in the Statement of Facts on this, and I know that the Court  
18 is very familiar with these different levels going from A to  
19 E., have you heard about those as well?

20                  A. I'm familiar with them.

21                  Q. And just to sort of jump right to it, as relevant  
22 here, Level B is generally going to be regarded as, I think  
23 it's referred to as computer-based training or something  
24 similar to that?

25                  A. I believe in the definition it talks about, it can

1 be direct training with a direction.

2 Q. And then Level D, as I understand it, is a more  
3 rigorous level of training?

4 A. It is.

5 Q. And what is Level D training?

6 A. Level D training would involve placing the crew  
7 members in a simulator and going through specifically those  
8 variations and allowing them the opportunity to see, feel,  
9 touch, hear, what those are and gives them a chance to train  
10 to proficiency on that.

11 Q. You mentioned a moment ago that a simulator you  
12 were working on took two years to get approved. I take it  
13 the number of simulators for something like the 737 MAX is  
14 pretty limited?

15 A. What I said was that it took two years to get the  
16 142 certificate. There was a lot involved with it, with not  
17 just the simulators, but there was course material, course  
18 instruction, the structure of the organization, and how they  
19 controlled quality control.

20 Part of the reason that it took so long was that  
21 we -- the FAA came out with a regulation, but it lagged  
22 behind the guidance in the 8900.1 handbook, the guidance for  
23 inspectors, and also with the -- lacked the advisory  
24 circular that usually goes out, which is a document that the  
25 operators can look at and use that for guidance on how to

1 proceed to get an approval of something like that.

2 So, it was new to the FAA. It was new to the  
3 operator. And that's why it took two years. Simulators  
4 were there --

5 Q. Let me just -- maybe I can focus on what I think  
6 is critical here.

7 Is it fair to say Level D training is going to be  
8 more expensive for --

9 A. Yes.

10 Q. And just briefly, why? Why is that the case?

11 A. Well, you have the operation of the simulator, and  
12 cost of the simulator is in the millions of dollars,  
13 obviously. The people necessary are trained properly to use  
14 that simulator.

15 And that would obviously add tremendously to the  
16 cost versus sitting down in a classroom with a computer or  
17 little small booklet in front of you and an instructor up in  
18 front for half an hour or an hour.

19 Q. I want to direct your attention now to a  
20 particular paragraph in the Statement of Facts. That's  
21 paragraph 19.

22 It refers to an email sent by Boeing employee Mark  
23 Fortner, in which he states, "If we lose Level B, it will be  
24 thrown squarely on my shoulders. It was Fortner. Yes,  
25 Fortner, who cost Boeing tens of millions of dollars."

1                   Are you familiar with that paragraph?

2                   A.    Yes.

3                   Q.    Is that consistent or inconsistent with the  
4                   opinion you've just offered there?

5                   A.    That would be consistent.

6                   Q.    And he's talking about millions of dollars. I  
7                   know you didn't look at an exact totaling up of the amounts,  
8                   but does that seem like a -- I guess it's Boeing's own  
9                   employee -- does that seem like a reasonable calculation to  
10                  you?

11                  A.    I would say so, yes.

12                  Q.    Now, before the two crashes that are of interest  
13                  in this case, what level of training did the FAA AEG  
14                  indicate was appropriate for the pilot transitioning to the  
15                  Boeing 737 MAX?

16                  A.    According to the documents that I reviewed, they  
17                  recommended and put into the FSB, Level B training.

18                  Q.    Now, that would apply, as I understand it, to the  
19                  U.S.-based airlines?

20                  A.    It would.

21                  Q.    The FAA does not have formal jurisdiction over  
22                  foreign airlines; is that correct?

23                  A.    Yes.

24                  Q.    But if we look beyond the black letter law to  
25                  real-world practical effects, would an FAA determination on

1 these kinds of training issues ever have an effect on  
2 foreign-based carriers?

3 A. Yes.

4 Q. What kind of effects would it have?

5 A. I would say the same kind of effect that it would  
6 have on a U.S.-based carrier. They would look to that  
7 information, take that, incorporate it into their own  
8 training. They would certainly look at it as a safety issue  
9 and would want to make sure that they operated at the  
10 highest level of safety.

11 Q. And again, because we can proudly say as Americans  
12 that the FAA has a lot of authority in these areas, is that  
13 one of the reasons why the recommendations from the FAA are  
14 often given credence in other countries?

15 A. Yes.

16 Q. I take it part of the reason they're given  
17 credence in other countries is, in general, other countries  
18 are expecting American manufacturers of aircraft to be  
19 truthful and honest in the information they provide to the  
20 FAA?

21 A. Yes.

22 Q. All right. Well, we've been talking generally  
23 about these issues. I now want to focus in on a particular  
24 date. October 29th, 2018.

25 MR. CASSELL: With the Court's permission, I would

1 like to approach the witness briefly, and I will provide a  
2 courtesy copy for the Court as well, and we'll provide  
3 copies to counsel as well.

4 BY MR. CASSELL

5 Q. Let me set the stage briefly. I think it's  
6 undisputed that in Statement of Facts paragraph 28, "On  
7 October 29th, 2018, Lion Air, Flight 610, a Boeing 737 MAX,  
8 crashed shortly after takeoff into the Java Sea near  
9 Indonesia. All 189 passengers and crew on board died."

10 I take it you are familiar with that crash?

11 A. Yes.

12 Q. Now, this was an Indonesian airline that had a  
13 plane taking off from Jakarta, crashing into the Java Sea  
14 near Indonesia. I'm assuming once a crash like that occurs,  
15 there's international interest in what happened?

16 A. Yes.

17 Q. Why would there be interest in figuring out what  
18 happened?

19 A. Well, many other countries operate the same type,  
20 make, and model of aircraft, in this case, the 737 MAX, and  
21 they would be most interested in finding out what happened  
22 so that they could perhaps take the appropriate steps to  
23 prevent that from happening to them.

24 Q. Then earlier we were talking about this  
25 organization known as ICAO. Does ICAO have anything to say

1 about accident investigations and who is in charge of those  
2 investigations?

3 A. The ICAO is -- kind of sets the recommended  
4 standard for the world -- aviation world to follow.

5 Q. And I'm sorry, so is there an annex dealing  
6 specifically with --

7 A. Annex 13.

8 Q. And so, for a crash of the type that I've just  
9 described, who would be responsible for doing that  
10 investigation?

11 A. Primarily, it would be the CAA of Indonesia.

12 Q. All right. Now, I want you to take a look at  
13 what's been marked for identification as Families'  
14 Exhibit 2.

15 It says, let's see at the outset here, if I'm  
16 pronouncing this correctly, Komite Nasional Keselamatan.  
17 Transportasi Republic of Indonesia.

18 Do you understand who is generally preparing their  
19 report?

20 A. Yes. It would be -- the information there, it  
21 would be the KNKT, I believe is what they call it.

22 Q. So I think for convenience, then, I will refer to  
23 them as "KNKT." Is that a convenient shorthand?

24 A. Yes, I believe so.

25 Q. And if we flip to the inside front cover of this

1 KNKT report, I see a signature from someone who's the  
2 chairman of this KNKT, I guess, it is?

3 A. Yes.

4 Q. And if I can direct your attention up towards the  
5 top of the page, there's -- the second paragraph says, "This  
6 report is based upon an investigation carried out by the  
7 KNKT in accordance with Annex 13 to the convention."

8 Is that the Annex 13 that you've been referring  
9 to?

10 A. It is.

11 Q. All right. So now that we know who prepared this  
12 report -- the report seems to be pretty lengthy here. Let's  
13 see, 317, 319 pages, I believe -- without going through  
14 every page, can you tell us what kind of information is  
15 generally in this report?

16 A. Again, it would have, as indicated there with the  
17 table of contents: The history of the flight, the injuries  
18 to the persons, damage to the aircraft, personnel  
19 information for each one of the crew members. They would go  
20 into their training background, their currency, medicals,  
21 experience on that particular make and model, flight time  
22 within the last year, last six months, 90 days.

23 They would look at the aircraft. They would go  
24 back into the records and look at the maintenance records,  
25 what has been done to that aircraft. Are all of the

1 required maintenance items done, done in the proper manner,  
2 and in a proper sequence, and in a timely manner?

3 They would look at any "squawks," if you will,  
4 where pilots would write up that something broke, something  
5 was faulty, something didn't work. They would look at those  
6 to see if they had been addressed. They would look at all  
7 the different systems on the aircraft. To the extent that  
8 they can, these investigators just about rebuild airplanes.

9 They are able to get it in a large hangar and  
10 start laying out the pieces. And they can do a phenomenal  
11 job of looking at individual pieces and tell what -- what  
12 piece broke, why it broke. They look at the weather  
13 information, aero communications, medical, and pathology.

14 As a matter of course, in the United States, any  
15 fatalities involving a crew member, the FAA would direct a  
16 -- we had what we call the tox kit. And they would do an  
17 autopsy and determine the presence of alcohol or any illicit  
18 drugs, or any kind of drugs, including over-the-counter,  
19 that might have been in the system of the crew members.

20 And then they also look at survivability. Excuse  
21 me. They will look at the organizational -- excuse me.  
22 They will look at the organizational structure of the  
23 organization, the owner of that company, or that type of  
24 aircraft involved in the accident, to determine if they had  
25 effective management, they had effective risk programs in

1 place, and if they were executed.

2 So it's usually a very in-depth type of look at  
3 it. They also come up with -- at the end, they usually put  
4 their analysis and safety recommendations that come out of  
5 the accident report.

6 Q. I think you said earlier that, in the course of  
7 your duties at the FAA, you had seen hundreds of accident  
8 reports coming across your desk in one way or another?

9 A. Yes.

10 Q. Does this accident report we're looking at here  
11 resemble and follow the kinds of protocols and methodologies  
12 that you have seen in those other reports?

13 A. Yes. The format and the methodology is pretty  
14 much the same whether it's a small, single-engine airplane  
15 or, say, a large transport category aircraft.

16 Q. Did the information inside this report appear  
17 trustworthy to you?

18 A. I believe it would be, yes.

19 MR. CASSELL: Your Honor, at this time, I would  
20 offer into evidence Families' Exhibit 2.

21 THE COURT: It will be admitted.

22 (Exhibit 2 was admitted into evidence.)

23 MR. JACOBS: I'm going to object to that, your  
24 Honor. Just for the record, objection to hearsay.

25 MR. CASSELL: All right, your Honor --

1                   MR. HANEY: We join the objection, your Honor.

2                   MR. CASSELL: I would like to build a brief record  
3 to explain why the hearsay objection is inadequate, or I  
4 guess maybe I shouldn't do that, because I could do it later  
5 on.

6                   THE COURT: Just go ahead and ask your next  
7 question.

8                   MR. CASSELL: All right. I would note for the  
9 record, if I could for just one sentence, the government  
10 cited this very document in its earlier briefing.

11 BY MR. CASSELL:

12                  Q. All right. Let's turn in for the report, then. I  
13 think you said you relied on this report in preparing your  
14 opinions?

15                  A. I did.

16                  Q. I'm going to identify a couple of particular  
17 findings in the report, and then I'm going to ask you if you  
18 relied on it and whether they were significant.

19                  "The KNKT found that the flight manual for the  
20 Boeing 737 MAX aircraft that crashed did not include  
21 information about MCAS."

22                  Did you rely on that fact in reaching your  
23 opinions?

24                  A. I read that, and I took that into consideration.

25                  Q. What significance did you attach to that fact?

1           A.    I considered that a very significant factor.  In  
2    that a major piece of information was missing, and,  
3   therefore, not available to the crew.

4           Q.    "KNKT found that the flight crew training for Lion  
5    Air, Flight 610, did not include information about MCAS."

6                 Did you rely on that finding in reaching your  
7    opinions?

8           A.    I did.

9           Q.    What significance did you attach to that fact?

10          A.    Once again, the crew of the aircraft would be  
11   flying without complete information and knowledge about the  
12   aircraft in which they were flying.

13          Q.    "KNKT found that no information about MCAS was  
14   given in the flight crew manuals for the Lion Air flight.  
15   And KNKT found that there were no procedures for mitigation  
16   in response to erroneous MCAS activation."

17                 Did you rely on that fact in reaching your  
18   opinions?

19          A.    Yes.

20          Q.    And again, what significance was there to that  
21   particular fact?

22          A.    Once again, the final analysis, the crew was not  
23   completely trained, did not know of the system's -- complete  
24   knowledge of the systems on their aircraft and had to review  
25   to -- or correction -- how to respond to an emergency or an

1       abnormal situation regarding that system.

2           Q.    "KNKT also found that not including information  
3       about MCAS in the flight crew operation manual made it more  
4       difficult for the flight crew to diagnose problems and find  
5       the corrective actions to overcome the improper MCAS  
6       activation that occurred before the crash."

7               Did you rely on that finding in reaching your  
8       conclusion?

9           A.    Yes.

10          Q.    And what significance did you attach to that?

11          A.    I would say that, the same thing. The pilots  
12       would be -- have incomplete training and not have full  
13       knowledge of the systems on their aircraft.

14          Q.    Just a couple more here, and then I will move on  
15       to the next subject.

16               "KNKT found that flight crew training would have  
17       supported the recognition of abnormal situations and  
18       appropriate flight crew action, but Boeing did not provide  
19       information and additional training requirements for the 737  
20       MAX since the plane was considered similar to previous  
21       models."

22               Were you familiar with that fact?

23          A.    I was.

24          Q.    And what significance did you attach to that?

25          A.    It would be the same.

1           Q.    And now, just two last ones that are found. I  
2    think you said at the end sometimes these reports have kind  
3    of overall conclusions.

4                   And in the overall conclusion section of this  
5    report, at page 207, KNKT found, "Without understanding of  
6    MCAS and reactivation after release of the electric trim,  
7    the flight crew was running out of time to find a solution  
8    before the repetitive MCAS activations, without fully  
9    retrimming the aircraft, placed the aircraft into an extreme  
10   nose-down attitude that the flight crew was unable to  
11   recover."

12                   Were you aware of that fact as well?

13           A.    I read that, yes.

14           Q.    And what significance did you attach to that  
15   conclusion?

16           A.    Going back to the lack of training. They had not  
17   been exposed to that situation. Therefore, they were kind  
18   of flying with that situation with one hand tied behind  
19   their back.

20           Q.    One last conclusion, "KNKT found" -- at page  
21   207 -- "The investigation believes that the flight crew  
22   should have been made aware of MCAS, which would have  
23   provided them with awareness of the system and increase  
24   their chances of being able to mitigate the consequences of  
25   multiple activations in the accident scenario."

1                   Were you familiar with that conclusion?

2           A.    Yes.

3           Q.    And what significance did you attach to that?

4           A.    Once again, the lack of information to the crew  
5        members prevented them from being able to react in a -- an  
6        appropriate manner to overcome the situation and stabilize  
7        the aircraft.

8           Q.    And just to be clear, the situation led to the  
9        death of 189 people?

10          A.    Yes.

11          Q.    Let me talk a little bit now about differences  
12        training against that backdrop of that particular aircraft  
13        and that particular flight. I want to talk about how Level  
14        D versus Level B would have interacted with the events  
15        there.

16               On October 29th, 2018, when 189 people died, what  
17        level of training was the FAA recommending for that  
18        aircraft?

19          A.    At that time, it was Level B.

20          Q.    And was that Level B recommendation based on  
21        complete information from Boeing or incomplete information?

22          A.    It was not based on complete information.

23          Q.    At that time, those pilots were not given  
24        simulator training on how to deal with improper MCAS  
25        activation. Is that fair?

1           A. Yes, that's correct.

2           Q. Is it fair to say that, because Boeing made a  
3 conscious effort to deceive the FSB by withholding critical  
4 information regarding MCAS on the 737 MAX, the FSB,  
5 following applicable guidelines, came to the logical  
6 conclusion that Level B differences training was  
7 appropriate?

8           A. Yes, sir.

9           Q. "Once it was discovered that Boeing had  
10 intentionally and fraudulently omitted critical data  
11 regarding the 737 MAX, MCAS system, the FSB later  
12 reevaluated the data."

13           And do you know what that later reevaluation  
14 concluded?

15           A. They came up with a reevaluation of Level D.

16           Q. Why would the FAA want to have Level D training to  
17 deal with these kinds of situations?

18           A. Basically, when they had all of the information  
19 made available to them following their own internal guidance  
20 and evaluations, they made the determination that a Level D  
21 would be the appropriate level of differences training.

22           MR. CASSELL: Now, I think your Honor is aware  
23 that in a couple of weeks we're going to have Vickie Norton,  
24 a pilot, who's actually gone through some of these  
25 trainings.

1 BY MR. CASSELL:

2 Q. But I want to ask you, you've also been through  
3 flight simulator training --

4 A. Yes, sir.

5 Q. -- not on the 737 MAX?

6 But based on these other simulators you've gone  
7 through, what advantages would simulator trainings -- the  
8 simulator training have given to those pilots on that  
9 flight?

10 A. Simulator training is just kind of like what it  
11 says. It simulates a real-life situation. The simulator  
12 duplicates what the aircraft is capable of doing. The  
13 simulator or the operator of the simulator has the  
14 capability to introduce different faults, different  
15 scenarios to the crew, where there are different reactions  
16 that are required.

17 It gives the pilots the opportunity to take  
18 information and knowledge that they have gained in the  
19 classroom and now take it and put it and apply it into the  
20 cockpit.

21 If there are memory items to be done, it gives  
22 them the opportunity to execute those memory items. And if  
23 something is wrong, they have the opportunity to freeze the  
24 simulator, stop it in mid-motion, and to discuss what was  
25 wrong.

1                   The simulator gives the pilot or the crew members  
2 the opportunity to, not only hear what is being taught or  
3 what he needs to know, but he has a chance to see it. He  
4 can see it on the gauges. He can see it on trim wheels. He  
5 can see it on message boards, on lights.

6                   He can feel it. He can feel what kind of control  
7 services he has. He can feel which way the aircraft is  
8 going and how to react to that. He can get a certain  
9 visceral sense of what's happening without being in a  
10 real-life, dangerous situation.

11                  So it gives him several opportunities, through  
12 several senses, to reinforce the learning so that, when he  
13 goes out and starts flying the line, he has that knowledge  
14 that, if that situation comes up, the training on how to  
15 properly react to that particular emergency is pretty  
16 well-ingrained in him and he knows what to expect, and he's  
17 not sitting there in a quandary wondering, what do I do  
18 next? Or trying to figure out from scratch, well, what do I  
19 do? There's something in writing that he learned and he  
20 actually experienced.

21                  Q.    All right.

22                  MR. CASSELL: And again, your Honor, we'll hear a  
23 lot more about this in a couple of weeks when Vickie Norton  
24 comes in.

25                  ///

1 BY MR. CASSELL:

2 Q. We've now covered the Indonesia crash. I'm going  
3 to jump over to the Ethiopian crash.

4 But just briefly, during that four-month period, I  
5 understand that there was something called an FCOM, a Flight  
6 Crew Operations Manual on -- when was that? November 6.  
7 And on November 10, there was a, I think, a MOM, a  
8 multi-operator message, touching briefly on some MCAS  
9 issues.

10 I take it you are aware of those two documents?

11 A. I am.

12 Q. Did you see those two documents as significantly  
13 changing the safety landscape from the Indonesian crash to  
14 the Ethiopian?

15 A. No, I did not.

16 Q. All right. If the parties have other questions, I  
17 suppose we will hear about that later.

18 Let's go to the Ethiopian Airline crash. With the  
19 Court's permission, I would like to approach the witness  
20 briefly to provide Families' Exhibit 3.

21 BY MR. CASSELL:

22 Q. And to set the stage for this report, according to  
23 the Statement of Facts, "On March 10th, 2019, Ethiopian  
24 Airlines, Flight 302, a Boeing 737 MAX crashed six minutes  
25 after takeoff near Nahari, Ethiopia. All 157 passengers and

1 crew were killed."

2 I take it you are familiar with that Ethiopian  
3 crash?

4 A. I am.

5 Q. The Statement of Facts is pretty vague on this  
6 topic. The Statement of Facts said that, "The FAA learned  
7 that MCAS activated during the flight and may have played a  
8 role in the crash."

9 Were you able to get more information about the  
10 role that MCAS played in the Ethiopian crash?

11 A. A little bit. But, again, that's not my  
12 bailiwick, the machinations of MCAS.

13 Q. Right. But I take it you looked at this  
14 particular report that you have in front of you there?

15 A. Yes, I did.

16 Q. And just, I guess, since there may be a similar  
17 objection, this report was prepared by the Federal  
18 Democratic Republic of Ethiopia Ministry of Transport  
19 Aircraft Accident Investigation Bureau, Interim Report.

20 Is that the same kind of authority as the KNKT  
21 that we were talking about?

22 A. I believe it is, yes.

23 Q. And why was it that the Ethiopian authorities were  
24 investigating this crash of an Ethiopian airline?

25 A. Well, they had jurisdiction. It was one of their

1 nationally registered aircraft and company within their  
2 jurisdiction.

3 Q. So, like the Indonesian crash, the ICAO annex we  
4 were talking about was -- provided that legal authority for  
5 them to --

6 A. They used the framework for that.

7 Q. And was this report, again, without going through  
8 all the details, was it similar to the lengthy report we  
9 were just looking at for the Indonesian crash?

10 A. Yes.

11 Q. In your estimation, was it similarly trustworthy?

12 A. I believe so, yes.

13 Q. And would an expert trying to offer the kinds of  
14 opinions you're offering rely on a report of this type?

15 A. Yes.

16 MR. CASSELL: Your Honor, at this time, I would  
17 offer Families' Exhibit 3.

18 MR. JACOBS: Objection, hearsay.

19 MR. HANEY: Join the objection.

20 THE COURT: Overruled. It will be admitted.

21 (Exhibit 3 was admitted into evidence.)

22 BY MR. CASSELL:

23 Q. All right. Now, again, as I did with the  
24 Indonsian report, I'm going to highlight a couple of facts  
25 and then ask you whether you relied on that and whether they

1        were significant.

2                The first fact is found on page 131 of the report.  
3        The Ethiopian AAIB -- and again, that's -- what is it? The  
4        Accident Investigation Bureau, I think -- found that,  
5        "Shortly After ET-302 takeoff, multiple automatic nose-down  
6        trim MCAS were activated."

7                Were you aware of that finding?

8                Or did you rely on that finding, I guess I should  
9        say?

10          A.      I have reviewed that, yes.

11          Q.      And what significance did you attach to that  
12        particular fact in the context of the opinions you're  
13        offering today?

14          A.      Once again, I think that they were very slim on  
15        training.

16          Q.      Well, indeed.

17                Going right on to the next page of the report,  
18        page 132. "The Ethiopia AAIB found that the difference  
19        training from the Boeing 737 NG" -- which, as I understand,  
20        was the predecessor version -- "to the 737 MAX provided by  
21        Boeing was inadequate."

22                Did you rely on that finding in reaching your  
23        conclusions?

24          A.      I had looked at that, yes.

25          Q.      And what significance did you attach to the fact

1 that the Ethiopian authorities thought the training was  
2 inadequate?

3 A. At that point, then, it goes back to the  
4 fundamental problem there that -- that I saw was the lack of  
5 training that the crews received.

6 Q. And I think earlier today you were talking about  
7 simulator training. At page 132, if I understand things  
8 correctly, the Ethiopian AAIB recommended that the  
9 difference training for pilots transitioning to the 737 MAX  
10 should include simulator sessions to familiarize them with  
11 normal and non-normal MCAS operation.

12 Did you rely on that fact in reaching your  
13 conclusions?

14 A. Yes, I read that.

15 Q. And what significance did you attach to that fact?

16 A. It told me that they realized that the information  
17 that they had relied on for differences training did not  
18 really support the fact, and that the best way to get crews  
19 trained from that point on would be to put them into a  
20 simulator situation where they could better learn and  
21 understand that system.

22 Q. And, in fact, on that same page, the Ethiopian  
23 AAIB recommended that the training simulators needed to be  
24 capable of simulating AOA failure scenarios.

25 Did you rely on that fact?

1           A.    Yes.

2           Q.    Just so the record is clear, AOA, that's a angle  
3    of attack sensor that, I think, the Court is very familiar  
4    with?

5           A.    Yes.  Yes.

6           Q.    Just so the record is clear, but they recommended  
7    training on a failure scenario?

8                 Could you help us understand what that kind of  
9    training would look like and why it might be important to  
10   pilots dealing with AOA failure scenarios?

11          A.    Basically, you have a -- on a more sophisticated  
12   aircraft, they have the AOA.  It will give them an  
13   indication of the angle of attack of the aircraft, which is  
14   the difference between the chord line and the relative wind.

15                 And in very simple terms, the higher the angle of  
16   attack, the closer you get to getting to an aerodynamic  
17   stall.  Very important for any aircraft to know what that  
18   stall situation looks like, what it feels like.

19                 So if it was getting false information, it would  
20   be very difficult for the crew to make a determination of  
21   exactly where they are.  There are other instruments that  
22   they could rely on.  Normally, it's one of those situations  
23   where, if they've had the appropriate training, they know  
24   what to do.  If they have a fault on the AOA, they know what  
25   system to use, what instrument to use, what screen to look

1 at for backup information to get more reliable information  
2 and discount the AOA.

3 MR. CASSELL: All right. At this time, your  
4 Honor, I would like to briefly approach the witness and  
5 offer another report. This is the House report. With the  
6 Court's permission?

7 Which has been marked for identification -- this  
8 has been marked for identification as Families' Exhibit 4  
9 which -- let's see here. I think the cover page indicates  
10 that is the final committee report on the design,  
11 development, and certification of the Boeing 737 MAX coming  
12 from the Committee on Transportation and Infrastructure.

13 Again, I don't know if there's going to be an  
14 objection to this, but maybe I should set the stage here in  
15 case there is.

16 BY MR. CASSELL:

17 Q. I notice that on page 3 of this report there's the  
18 statement, "This report concludes the U.S. House Committee  
19 on Transportation and Infrastructure's 18-month long  
20 investigation of the design, development, and certification  
21 of the 737 MAX aircraft and related matters."

22 Is that your understanding of what's in this  
23 document here?

24 A. Yeah.

25 ///

1           Q.    And is this the kind of document that an expert  
2 like you, trying to provide expert opinions of the type  
3 you're offering, would ordinarily rely upon in reaching  
4 those expert opinions?

5           A.    Yes.

6           Q.    In fact, if we go to page 6 of the report, I see  
7 there -- I think it's in the second paragraph on page 6 it  
8 says the committee held five hearings on issues related to  
9 the 736 MAX program, has written 23 oversight letters,  
10 including 12 records request letters, received an estimated  
11 600,000 pages of letters from Boeing, the FAA, airlines, and  
12 others, and conducted two dozen official interviews with  
13 current Boeing and FAA employees and others.

14           Do you see that there as well?

15           A.    Uh-huh.

16           Q.    Is that generally consistent with your  
17 understanding of the type of information that's found in  
18 this House report?

19           A.    Yeah.

20           MR. CASSELL: Your Honor, at this time I would  
21 move for the admission of Families' Exhibit 4.

22           MR. JACOBS: Objection, hearsay.

23           MR. HANEY: Join the objection, your Honor. This  
24 document contains multiple levels of hearsay and, of course,  
25 an expert can rely on permissible hearsay in formulating his

1       opinion, but that doesn't necessarily make it admissible  
2       under the rules.

3                   THE COURT: Overruled. Exhibit 4 will be  
4       admitted.

5                   (Exhibit 4 was admitted into evidence.)

6                   MR. CASSELL: Again, I know that we're taking a  
7       long time here, but I appreciate the Court's patience on all  
8       of these points we think are going to our argument here.

9       BY MR. CASSELL:

10                  Q. So I'm going to do the same thing I've done on  
11       these other reports. I'm going to ask you, were you  
12       familiar with -- or did you rely on a finding here, and then  
13       what significance did you attach to it?

14                  So I notice in page 25 of this report, the  
15       following: "From 2015 to 2018, information regarding the  
16       fact that Boeing's own test pilot took more than 10 seconds  
17       to respond to uncommanded MCAS activation in a flight  
18       simulator leading to potentially catastrophic consequences  
19       was included in at least six separate internal Boeing  
20       coordination sheets on MCAS's requirements. This indicates  
21       Boeing's keen awareness of the importance of this  
22       information."

23                  Were you aware that the House committee reached  
24       this conclusion?

25                  A. I was.

1           Q.    And did you find this to be a significant fact in  
2 connection with some of your --

3           A.    I do.

4           Q.    Why would it have been significant that -- well,  
5 actually, I'm sorry. Let's just move on to the next one.

6                   At page 142, just to kind of -- this is a summary  
7 of obviously dozens of pages in the report, "In the end,  
8 MCAS played a key role in both MAX crashes."

9                   Did you rely on that finding?

10           A.    I read it, yes.

11           Q.    And how was that significant in your opinions?

12           A.    Once again, it supported my feeling and conclusion  
13 that the training was inadequate for the 737 MAX with regard  
14 to MCAS.

15           Q.    Let's jump back one page earlier, page 141. The  
16 House committee found, "The assumption that pilots  
17 transitioning from the 737 NG to the 737 MAX would only need  
18 a limited amount of differences training and no simulator  
19 training diminished safety."

20                   Were you aware of that finding?

21           A.    Yes.

22           Q.    And how did that factor into your analysis today?

23           A.    Once again, with the lack of training, a pilot of  
24 the aircraft would not be properly equipped to deal with a  
25 specific emergency.

1                   In this case, malfunction of the MCAS system and  
2 would not know how to react. And in reality, would probably  
3 have a moment or two where they would look at it and not  
4 know how to respond because they hadn't been taught how to  
5 respond and precious seconds might have gone by while they  
6 tried to figure out what to do.

7                   Q.    A couple of points today. You've mentioned the  
8 cascading effect of Boeing's lies. I noticed that on page  
9 141 is the following, "More than any other program  
10 objective, ensuring that the FAA's pilot training  
11 requirements for the MAX did not include simulator training,  
12 had an incredibly significant cascading effect on the 737  
13 MAX program that undermined the safety of the flying  
14 public."

15                   Were you aware of that finding?

16                   A.    Yes.

17                   Q.    And, again, how is that significant in the context  
18 of your opinions?

19                   A.    It's the same issue there, that the pilots are  
20 flying an aircraft that they're not thoroughly trained on,  
21 and the fact that people get onto that airplane, the flying  
22 public, they're getting into a situation where there's a  
23 higher risk they're not aware of because a pilot has not  
24 been properly trained or thoroughly trained.

25                   Q.    Another finding that I thought was significant is

1 found on page 26. The committee report says, "In  
2 March 2017, the month the 737 MAX was certified by the FAA,  
3 Boeing's 737 chief technical pilot responded to colleagues  
4 about the prospects of 737 MAX simulator training, writing,  
5 'Boeing will not allow that to happen. We will go  
6 face-to-face with any regulator who tries to make that a  
7 requirement.'"

8                   Were you aware of that finding?

9                   A. I was aware of that.

10                  Q. How does that factor into the opinions that you're  
11 reaching here today?

12                  A. I find it rather disturbing.

13                  Q. Let's go to the next one on 26 to 27. House  
14 finding here is, "In May and June 2017, as some foreign  
15 carriers ask Boeing about providing simulator training for  
16 their pilots transitioning to the 737 MAX from the NG,  
17 emails show Boeing's chief technical pilot strongly opposed  
18 such training, and in one case even successfully talked a  
19 carrier" -- I think in context, that's a foreign carrier --  
20 "out of using such training for its pilots on the 737 MAX."

21                  Were you aware of that finding?

22                  A. I was.

23                  Q. And does that support or undercut your  
24 conclusions?

25                  A. It supports my conclusions.

1           Q.    The next one of interest is at page 156.  It talks  
2 about an airline that is involved directly in this case.

3               In a June 2017, Instant Message exchange with a  
4 Boeing colleague, Fortner wrote, "Now, freaking Lion Air  
5 might need a sim to fly the MAX and maybe because of their  
6 own stupidity.  I'm scrambling to figure out how to unscrew  
7 this now."

8               Are you aware of that finding?

9           A.    I am, yes.

10          Q.    Is that consistent with the fact that you told us  
11 later on that, when the accident investigators tried to  
12 reassemble what had happened on the Lion Air aircraft, there  
13 had been no simulator training for those pilots?

14          A.    There had been none.

15          Q.    At page 157, the Committee found, "In  
16 December 2017, Mr. Fortner informed a colleague in an  
17 Instant Message exchange that he made a foreign airline" --  
18 again, foreign airline -- "feel stupid about trying to  
19 require any additional training requirements.  'I just Jedi  
20 mind-tricked the fools'" Mark Fortner wrote -- or "I should  
21 be given a thousand dollars every time I take one of these  
22 calls," he said.  And then added, "I saved this company a  
23 sick amount of \$\$\$\$."

24               Is that something you were familiar with as well?

25          A.    I am.

1           Q.    And is that consistent with the information that  
2 you've been describing about how foreign airlines did not  
3 have additional training, I think is the way Mr. Fortner was  
4 putting it?

5           A.    It is.

6           Q.    The House committee wrote, "Even after the fatal  
7 Lion Air crash, Boeing maintained that its rationale for  
8 removing references to the MCAS from the 737 training manual  
9 was still valid. Boeing asserted that the addition of MCAS  
10 on the 737 MAX did not affect knowledge, skills, abilities,  
11 or flight safety."

12           Were you aware of that finding?

13           A.    Yes.

14           Q.    And was that consistent again with what you were  
15 telling us happened in those two crashes --

16           A.    Yes.

17           Q.    -- where they were not knowledgeable about these  
18 issues?

19           A.    Yes.

20           MR. CASSELL: I now have two emails that I'm going  
21 to provide. It's going to be -- I think we are up to  
22 Families' Exhibit 5?

23           So we are going to have Families' Exhibit 5.

24           Let's see. We will have Families' Exhibit 5 and Families'  
25 Exhibit 6.

1                   I'm going to provide, with the Court's permission,  
2       5 and 6.

3       BY MR. CASSELL:

4           Q.    So let's take a look at Exhibit -- Families'  
5       Exhibit 5. It's got a -- you see a company reference in the  
6       upper left-hand corner?

7           MR. CASSELL: So let's take a look at Families'  
8       Exhibit 5. Do you see a company reference in the upper  
9       left-hand corner?

10          A.    Yes.

11          Q.    What company is referenced there?

12          A.    Boeing.

13          Q.    And does it appear to be coming from somebody at  
14       Boeing?

15          A.    737 chief technical pilot.

16          Q.    And I see a date here. What is the date on this  
17       document?

18          A.    June 5th, 2017, 9:33 p.m.

19          Q.    All right.

20           MR. CASSELL: And, your Honor, let's take a look  
21       at -- let's see. If we go down here, the second substantive  
22       paragraph says something like, "Perhaps we should begin to  
23       discuss at your earliest opportunity."

24           And then there's a reference to the FAA. I'm  
25       assuming that's our agency here in the United States.

1 BY MR. CASSELL:

2 Q. It says, "EASA." Do you know what EASA would  
3 refer to?

4 A. I believe that's the European Aviation Safety  
5 Authority.

6 Q. And then there's reference to Transport Canada.  
7 Do you know what that might be?

8 A. That would be the Canadian equivalent of the FAA.

9 Q. And I see Chinese, Malaysia, and Argentinian  
10 authorities. In context, does that seem to be the aviation  
11 authorities?

12 A. I would assume they are, yes.

13 Q. It says, "They have all accepted CBT" -- I guess  
14 that's computer-based training? -- "requirement as the only  
15 training needed"?

16 A. Yes.

17 Q. "They would be happy to share with you other  
18 information."

19 Was this the kind of information that an expert  
20 like you would rely upon in reaching conclusions like the  
21 type you've --

22 A. Yes.

23 Q. -- reached today?

24 And have you seen this email earlier?

25 A. Yes, I have.

1 MR. CASSELL: Your Honor, I will represent to the  
2 Court that, in the House Committee report that I referred to  
3 earlier, there is a hyperlink to additional documents that  
4 support the finding of the committee. And that's where  
5 plaintiffs' counsel have -- I should say families' counsel  
6 have secured this email.

7                   And at this time, I would offer Families'  
8                   Exhibit 5. I do not believe the authenticity of this  
9                   document can be reasonably questioned.

10 And if the authenticity is questioned, we would  
11 request an opportunity to call the appropriate witnesses  
12 from Boeing to establish its authenticity.

13 MR. JACOBS: Objection, hearsay.

14 MR. HANEY: Join the objection.

15 THE COURT: Overruled.

16 Exhibit 5 will be admitted.

17 (Exhibit 5 was admitted into evidence.)

18 MR. CASSELL: And, your Honor, just to speed  
19 things up, I will represent that document 6 is a similar  
20 document.

23 Exhibit 6 will be admitted.

24 (Exhibit 6 was admitted into evidence.)

25 | //

1 (BY MR. CASSELL:)

2 Q. And this document says -- once again, I think  
3 we've actually talked about some of this information -- the  
4 statement that I want to direct your attention to is one  
5 that we have not had an opportunity to talk about.

6 If you work your way down about 80 percent of the  
7 page, we see from a Boeing employee, "I think we should hold  
8 firm at zero dollars."

9 And this document says, once again -- I think  
10 we've actually talked about some of this information. But  
11 the statement that I want to direct your attention to is one  
12 that we have not had an opportunity to talk about.

13 If you work your way down about 80 percent of the  
14 page, we see from a Boeing employee, "I think we should hold  
15 firm at zero dollars," and then there's a sentence. This is  
16 the sentence I wanted to direct your attention to, sir.

17 It says, "FAA is pretty powerful, and most  
18 countries defer to what the FAA does, except for the  
19 national authorities that are stuck in the stone ages, JCAB  
20 and ANAC." Do you see that sentence?

21 A. Yes, I have seen it.

22 Q. And is that -- I know today you were talking about  
23 other countries deferring to the FAA. Do you see this email  
24 as confirming or contradicting the conclusions?

25 A. I believe it confirms it.

1           Q.    And this looks from what -- this is a Boeing  
2 document?

3           A.    I believe it is.  It says "Boeing."

4           Q.    Now, I want to talk to sort of --

5           MR. CASSELL:  Let's see.  Your Honor, I know your  
6 Honor has been very patient.  I see I have about five more  
7 pages of notes here.  I would estimate 10 or 15 minutes --

8           THE COURT:  Okay.

9           MR. CASSELL:  -- to wrap things up.

10          BY MR. CASSELL:

11          Q.    Let's talk a little bit about the risk that those  
12 Indonesian passengers and crew faced.

13          I want to take you to approximately 6:20 a.m.  
14 local time on October 29th, 2018, when Lion Air, Flight 610,  
15 a Boeing 737 MAX, was on the runway and taking off from  
16 Jakarta.  Is it your opinion that Boeing's conspiracy of  
17 lies created a risk to the passengers and crew at that time?

18          A.    Yes.

19          Q.    Let's unpack that conclusion just a little bit.  
20 As that plane was revving up to take off, what kind of  
21 training risk were the passengers and crew subjected to?

22          A.    At that point, at that immediate point, they were  
23 not subjected to any risk.  However, once the airplane took  
24 off, then the system in question, the MCAS system, could be  
25 activated, at which point the crew, once again, if they were

1       improperly trained or not completely trained or did not have  
2       a complete understanding of the system and what was  
3       happening in front of them -- excuse me -- would then  
4       obviously place the crew, the plane, and all passengers on  
5       board at risk for a catastrophic event.

6           Q.    A catastrophic event, like the death of 189  
7       people?

8           A.    Yes.

9           Q.    What kind of aircraft manual risk -- and you're  
10       right. I had them on the runway. Let's assume the plane is  
11       one minute into its flight.

12           What sort of risks were the passengers and crew  
13       subjected to because of the nature of the aircraft manuals  
14       that were on board the flight at that time?

15           A.    The same.

16           Q.    And what about any emergency checklist risk when  
17       the plane was airborne?

18           What kind of risk would they be under?

19           A.    Under the circumstances, the checklist would have  
20       been incomplete.

21           Q.    I now want to present you with a hypothetical set  
22       of facts and get your expert opinion on it.

23           For purposes of this question, I want you to  
24       assume that Boeing did not engage in a conspiracy to defraud  
25       the FAA about the new MCAS. Instead, Boeing had behaved as

1 a lawful corporation and complied with its obligations and  
2 properly disclosed the MCAS to the FAA AEG.

3                 Based on your expert understanding of the FAA and  
4 ICAO and other aeronautical issues, can you trace through,  
5 with a reasonable degree of aeronautical certainty, what  
6 things might have looked like as that plane was taking off  
7 in this alternative world?

8                 A.     I believe I can say, with a reasonable degree of  
9 certainty, that that plane, in that situation, would have  
10 been successfully recovered and able to return for a safe  
11 landing, thereby preserving life and property.

12                Q.     You said, "Preserving life and property." 189  
13 people would have lived?

14                A.     Yes.

15                Q.     And I want to take you to the Ethiopian flight.  
16 With regard to approximately 8:30 a.m. local time -- maybe I  
17 should make that 8:39 a.m. local time -- shortly after the  
18 plane has taken off.

19                 On March 10, 2019, Ethiopian Airlines, Flight 302,  
20 was taking off from Addis Ababa. Did Boeing's conspiracy  
21 create a risk to the passengers and crew on that flight?

22                A.     Yes.

23                Q.     And to briefly run through the checklist, was  
24 there a training risk that the passengers and the crew were  
25 subjected to?

1           A.    Inadequate training, yes.

2           Q.    How about an aircraft manual risk?

3           A.    Inadequate information in the manual.

4           Q.    Emergency checklist risk?

5           A.    Incomplete checklist.

6           Q.    And now I want to present you a hypothetical set

7           of facts and get your expert opinion on it.

8                   For purposes of this question, I want you to

9           assume that, contrary to fact, Boeing did not engage in a

10           conspiracy to defraud the FAA about the new MCAS system.

11           Instead, Boeing lawfully complied with its obligations and

12           disclosed the MCAS to the FAA AEG.

13                   Based on your expert understanding of the FAA,

14           ICAO, and the other issues we've been talking about today

15           and have previously traced through, to a reasonable degree

16           of aeronautical certainty, what would the world have looked

17           like if Boeing hadn't lied?

18           A.    Once again, I believe, to a degree -- certain

19           degree of certainty -- correction -- of certainty that the

20           crew would have been properly trained, would have reacted

21           appropriately to the emergency, recovered to normal flight,

22           and been able to return to the airport for the safe landing

23           and preservation of life and property.

24           Q.    157 people would be alive?

25           A.    Yes.

1           Q. Now, let's -- we've talked about the crashes.  
2 Just one or two more things here. I want to take you now to  
3 January 7th, 2020. That's a year or two after the crashes.

4                   Boeing made an announcement in which it  
5 recommended 737 MAX simulator training, in addition to  
6 computer-based training. Boeing stated, "This  
7 recommendation takes into account our unstinting commitment  
8 to the safe return of service, as well as to changes in the  
9 airplane."

10                  Can you help me understand that?

11                  When they said they're asking for simulator  
12 training, what was Boeing talking about?

13           A. They were talking about the change from Level B to  
14 Level D training for that variant of the 737.

15           Q. Did Boeing's concession come too late for the 346  
16 passengers and crew on Lion Air 610 and Ethiopian Airlines  
17 302?

18           A. According to that document, it did.

19           Q. And I take it the FAA, then, ultimately did, as  
20 you were suggesting, approve Level D training for the 737  
21 MAX?

22           A. They did.

23           Q. All right. Two more pages of notes here.

24                  MR. CASSELL: I'm going to now offer Families'  
25 Exhibits 7, 8 and 9; 7 is a two-page document, 8 is a

1 two-page document, and 9 is a two-page document. I don't  
2 have a stapler immediately at hand.

3 With the Court's permission, I have three  
4 documents here, providing to opposing counsel.

5 BY MR. CASSELL:

6 Q. These are something that I will represent are  
7 known as a Continued Airworthiness Notification to the  
8 International Community. I think that's called a CANIC or  
9 CANIC or something like that?

10 A. Yes, that's an acronym.

11 Q. Looking at the first one, I see it's dated  
12 March 11th, 2019. I guess one of the issues in this case  
13 has been whether the FAA ever talks to other regulators or  
14 other airlines around the world.

15 So if I could direct your attention to the "From"  
16 item here. It says "From the FAA." Is that your  
17 understanding of where this came from?

18 A. Yes.

19 Q. And then if we can jump up above that, it goes to  
20 "Civil Aviation Authorities." Can you tell me what that  
21 would be a reference to?

22 A. Civil Aviation Authorities would be the  
23 counterpart to the FAA in foreign countries.

24 Q. So here is the FAA talking to the regulators in  
25 other countries. What are they talking about?

1           A. They're talking about the situation that had  
2    occurred with the Ethiopian flight and some of the  
3    information -- preliminary information that was gleaned from  
4    that. It was passed on to 3 -- 59 operators worldwide.

5           Q. Fifty-nine operators. So that's on page 2 of the  
6    document there?

7           A. Yes.

8           Q. I don't want you to read through all 59, but there  
9    are two operators that are of keen interest to this hearing.

10           Do you see the Lion Air indicated as one?

11           A. Lion Air is in there, yes.

12           Q. How about Ethiopian Air?

13           A. Ethiopian is in there also.

14           Q. So there is a situation where we see the FAA  
15    communicating directly with the airlines who were affected  
16    by these two crashes?

17           A. Yes.

18           MR. CASSELL: Your Honor, I would proffer that  
19    this is a legitimate document from the FAA. We could call  
20    experts, if the government wants to dispute it, but I would  
21    move at this time the admission of Families' Exhibit 7.

22           MR. JACOBS: Objection, hearsay.

23           MR. HANEY: Join the objection.

24           MR. CASSELL: Your Honor, if I could just briefly  
25    respond?

1                   THE COURT: 7, 8 and 9?

2                   MR. CASSELL: 7, 8, and 9 are all going to be of  
3 similar character.

4                   THE COURT: And they will be admitted.

5                   (Exhibits 7, 8 and 9 were admitted into evidence.)

6                   MR. CASSELL: And again, the limited point that  
7 we're offering these for is simply to show that the FAA is  
8 in close contact with its counterparts overseas, as well as  
9 airlines affected. If 7, 8 and 9 have been accepted --

10 BY MR. CASSELL:

11                  Q. Are these of a similar character to item 7 when we  
12 look at Exhibit 8?

13                  A. They appear, to be, yes.

14                  Q. All right.

15                  MR. CASSELL: And then just one last exhibit.

16                  And then about two more minutes, your Honor, and  
17 then -- I appreciate your patience. Obviously, a lot of  
18 material to cover here today.

19                  And we have one document that is two pages long,  
20 Families' Exhibit 10. With the Court's permission?

21                  Families' Exhibit 10 is dated January 7, 2021. I  
22 believe that's the date this Court got involved in this case  
23 when Boeing and the government filed a DPA with this Court.

24 BY MR. CASSELL:

25                  Q. I will represent to you that this is a press

1 release from the United States Department of Justice. I  
2 want to direct your attention to, I think it's the fourth  
3 sentence down, the United States Department of Justice put  
4 out a press release when it was announcing its agreement in  
5 this case.

6 It said, "The misleading statements, half-truths,  
7 and omissions communicated by Boeing employees to the FAA  
8 impeded the government's ability to ensure the safety of the  
9 flying public, including" -- I'll stop there.

10 Do you see that statement?

11 A. Yes, I do.

12 Q. Is that consistent with the opinions you've been  
13 offering here today?

14 A. Yes, it is.

15 Q. And with the passengers whose safety was  
16 impeded -- or, I'm sorry. Let me figure out how to phrase  
17 this.

18 The government says that the lies impeded the  
19 government's ability to ensure the safety of the flying  
20 public.

21 Would that include the 346 people who died on  
22 those two flights?

23 A. Yeah.

24 MR. CASSELL: Your Honor, at this time, I would  
25 offer Families' Exhibit 10 as an admission by a party

1 opponent, the United States Department of Justice.

2 THE COURT: All right. It will be admitted.

3 (Exhibit 10 was admitted into evidence.)

4 MR. CASSELL: Your Honor, were you thinking of  
5 taking a break at this point?

6 THE COURT: No.

7 MR. CASSELL: I will check here and make sure my  
8 colleagues haven't noticed something I've missed.

9 MR. HANEY: Your Honor, just for the record, we  
10 would object to Exhibit 10 as hearsay.

11 THE COURT: That will be overruled.

12 MR. HANEY: Thanks.

13 MR. CASSELL: Your Honor, that concludes our  
14 direct examination of Mr. Keyes.

15 THE COURT: All right. Mr. Jacobs.

16 CROSS-EXAMINATION

17 BY MR. JACOBS:

18 Q. Good morning, Mr. Keyes.

19 A. Morning.

20 Q. Mr. Keyes, my name is Cory Jacobs. I'm an  
21 attorney with the Justice Department. It's nice to meet  
22 you.

23 Sir, we haven't previously met each other,  
24 correct?

25 A. Pardon me, sir?

1           Q.    We haven't previously met?

2           A.    No, we have not.

3           Q.    So, sir, I would just like to walk through your  
4 references that are on the last pages, page 13, of what is  
5 in evidence as Families' Exhibit 1.

6                   Do you still have that in front of you?

7           A.    What document are we looking at, sir?

8           Q.    Sure. So it's Exhibit -- it's Families'  
9 Exhibit 1, but it's the references that are on the last page  
10 of your expert report.

11           A.    Okay.

12           Q.    There are a few things that Mr. Cassell asked you  
13 about. I just want to walk through those just briefly.

14                   So Mr. Cassell asked you about the final committee  
15 report, "The Design, Development, and Certification of the  
16 Boeing 737 MAX."

17                   Is that something that you were part of drafting,  
18 sir?

19           A.    No, I was not.

20           Q.    Did you speak with anybody who had a role in  
21 drafting that report?

22           A.    No, I did not.

23           Q.    Mr. Cassell asked you about No. 3, which was the  
24 Republic of Indonesia, Final Aircraft Accident Investigation  
25 Report.

1                   Did you author that report, sir?

2                   Did you author that report?

3           A.    No, I did not.

4           Q.    The acoustics are tough. I will try to be clear.

5                   Did you speak with anybody who also authored that  
6 report?

7           A.    No, I did not.

8           Q.    And No. 4, which was the Ethiopian Airlines Crash  
9 Report, same question: Did you author that report?

10          A.    No, I did not.

11          Q.    Did you speak with anybody who authored that  
12 report?

13          A.    No, I did not.

14          Q.    And you were also asked about the number of United  
15 States codes and CFRs that would apply to the FAA.

16                  Now, sir, I understand that you worked for the FAA  
17 for a number of years, right?

18          A.    Yes.

19          Q.    Did you ever have an experience at the FAA where a  
20 decision was made by someone else that you disagreed with?

21          A.    Internally, you mean?

22          Q.    Correct.

23          A.    Yes.

24          Q.    In a large federal regulatory agency like the FAA,  
25 there are often a lot of people involved in making a

1           particular decision about a topic, right?

2           A.    Correct.

3           Q.    And so, while you can give your view about what  
4           you think the FAA would do with respect to a particular  
5           issue, it can be complicated, right?

6           A.    It can be, yes.

7           Q.    And your view here today, it's your educated  
8           guess, correct?

9           A.    Educated, yes.

10          Q.    But it's not --

11           MR. CASSELL: Your Honor, could I ask for a  
12           clarification on what specific opinion is being referred to  
13           here?

14          BY MR. JACOBS:

15          Q.    Sure.

16           So it's your opinion, sir, in your expert report  
17           that, had the AEG had the complete dataset about MCAS  
18           training, that it would have required a level of differences  
19           training greater than Level B, correct?

20          A.    Yes, correct.

21          Q.    And that's just your educated view, correct?

22          A.    It's my considerate opinion.

23          Q.    But not absolute certainty, correct?

24          A.    I can be fairly certain on that, yes.

25          Q.    But it's not absolute, right?

1                   Like you said, there are often a number of people  
2 involved in the decision-making process, and so anything  
3 could have happened, correct?

4                   A.    A lot of input for it, but I am certain that that  
5 was the opinion that the AEG came up with based on their  
6 internal documentation.

7                   Q.    Now, sir, you said that you did not have an  
8 opportunity to review the 737 MAX, FSB report that was in  
9 place at the time of the accident, correct?

10                  A.    Correct.

11                  Q.    And you were not part of the evaluation or  
12 decision-making process for that FSB report, right?

13                  A.    Correct.

14                  Q.    Have you been part of the evaluation process or  
15 the drafting of any 737 MAX --

16                  A.    No, sir.

17                  Q.    -- FSB report?

18                  What about any FSB report for any version of the  
19 737?

20                  A.    No, sir.

21                  Q.    And, sir, before you came to court today, did you  
22 have an opportunity to look back at the 737 MAX, FSB report  
23 that was in place at the time of the accident?

24                  A.    No, I have not.

25                  Q.    So do you know what was actually in that 737 MAX,

1 FSB report as it relates to MCAS?

2 A. Only from what I've read in the documents that  
3 were provided to me.

4 Q. And is it fair to say that there was only the  
5 words "Maneuvering Characteristic Augmentation System," but  
6 no actual description of how the system operated?

7 A. I believe so, yes.

8 Q. Sir, are you type rated to fly the 737 MAX?

9 A. I am not.

10 Q. Are you type rated to fly any version of a Boeing  
11 737?

12 A. No, sir, I am not.

13 Q. Sir, you were asked some questions about the FSB  
14 report and its applicability around the world. Do you  
15 remember that?

16 A. Yes, sir.

17 Q. Does the FAA's FSB report, does that bind foreign  
18 regulatory authorities or aviation regulatory authorities?

19 A. No, it does not.

20 Q. Are foreign aviation regulatory authorities able  
21 to make their own educated evaluations and decisions about  
22 what training to put in place for the airlines that operate  
23 in their countries?

24 A. They are.

25 Q. And understanding that the FAA didn't have all

1 information about how MCAS was designed to operate,  
2 particularly within the AEG, the FAA still didn't require  
3 simulator training, at the outset, for the 737 MAX, correct?

4 A. Correct.

5 Q. Now, do you know whether other regulators outside  
6 of the U.S. did, in fact, require simulator training for the  
7 MAX at the outset?

8 A. I saw no indication that anybody required it in  
9 any other country.

10 Q. Do you know whether the Brazilian aviation  
11 authorities actually took a different path than the FAA and  
12 required simulator training for the MAX?

13 A. I'm not sure, no.

14 Q. You're just not sure?

15 A. No, I don't know.

16 Q. Okay. You testified that you thought that a  
17 country that didn't have -- I'm just trying to paraphrase --  
18 resources, you said that you would think that they would  
19 follow the FAA in what they published in the FSB, right?

20 A. Yes.

21 Q. Have you worked directly with any foreign aviation  
22 regulatory authorities?

23 A. Yes.

24 Q. Have you worked with the Ethiopian aviation  
25 regulatory authorities directly?

1 A. No.

2 Q. What about the Indonesian --

3 A. No.

4 Q. -- aviation?

5 No to both?

6 A. No to both.

7 Q. Did you speak with anybody from either one of  
8 those aviation authorities before testifying here today,  
9 sir?

10 A. No, I did not.

11 Q. And so, sounds like it's your view that you think  
12 that those two countries -- let me just make it clear.

13 Do you think those two countries are countries  
14 that would lack resources such as they would just rely on  
15 the FAA's publications?

16 A. I could not make that assumption.

17 Q. And, sir, you are relying on some of the  
18 information that's contained within each of their accident  
19 reports, correct?

20 A. Correct.

21 Q. You're relying on information that's contained  
22 within the Ethiopian Airlines crash report and the Indonesia  
23 Lion Air crash report, correct?

24 A. Correct.

25 Q. And as it relates to those crash reports, you

1 don't have any reason to doubt the accuracy of those crash  
2 reports, correct?

3 A. I have no reason to doubt that.

4 Q. You have no reason to doubt that those countries  
5 have the resources to do an independent investigation and  
6 get to the bottom of things, like an airline crash, correct?

7 A. Correct.

8 Q. Now, I think you said that before coming to court  
9 to learn about MCAS, you Googled it?

10 You looked it up on Google?

11 A. Yeah, I Googled it and looked at some other  
12 professional publications and -- just trying to get an idea  
13 what MCAS was all about.

14 Q. And, sir, I'm not an engineer. Are you an  
15 engineer?

16 A. No, sir, I am not.

17 Q. Did you have any role on engineering or designing  
18 MCAS?

19 A. No.

20 Q. Did you provide any kind of consulting expertise  
21 about how MCAS would be engineered and designed?

22 A. No, sir.

23 Q. And, sir, now that you've learned a bit about  
24 MCAS, are there certain things about how MCAS was designed  
25 and engineered and would operate that concern you?

1                   MR. CASSELL: Your Honor, objection. I think this  
2 is beyond the scope of direct.

3                   THE COURT: Overruled.

4                   THE WITNESS: I couldn't answer that.

5 BY MR. JACOBS:

6                   Q. Why not?

7                   A. I don't have enough knowledge of it, how it was  
8 put together, how it was engineered.

9                   Q. What about how it would operate?

10                  A. Only a very, very rudimentary understanding of it,  
11 but that's as far as it goes.

12                  Q. A very rudimentary understanding about how MCAS  
13 would operate?

14                  A. Yeah.

15                  Q. Okay. Are you familiar with what some people have  
16 described as how MCAS could ratchet, sort of a ratcheting or  
17 an unlimited ability to ratchet?

18                  A. I'm familiar with that.

19                  Q. And how it would essentially put the plane in a  
20 full nose-down position, as it was originally designed, if  
21 it engaged. Are you familiar with that?

22                  A. Yes, sir.

23                  Q. Is that something that, as you've learned about  
24 that, that concerns you?

25                  A. Yes, sir.

1           Q.    And why is that?

2           A.    Well, it's going to put the aircraft in an unusual  
3           situation or an unusual attitude. And for the most part,  
4           from the beginning of a pilot's training, when they --  
5           before they even get their private pilot certificate, we  
6           train for unusual attitude and unusual attitude recovery.

7                   As you get into more sophisticated aircraft, the  
8           recovery gets a little bit more complicated and requires  
9           more input, more training, more experience.

10           Q.    And are you familiar with how MCAS, as it was  
11           originally designed, relied only on a single angle-of-attack  
12           sensor?

13           A.    That was my understanding, yes.

14           Q.    Is that also something that, as you sit here  
15           today, looking at the system in hindsight, is concerning?

16           A.    For a single source, yes, I would say that it's  
17           concerning. And it's surprising that there's not a  
18           redundancy for that.

19           Q.    And in your expert report you've used the term  
20           "Critical information" about MCAS that the FAA wasn't aware  
21           of.

22                   Is that something that you would consider to be  
23           critical information, that MCAS could ratchet all the way  
24           until the plane was nose-down?

25           A.    I believe so, yes.

1           Q.    And also that it would rely on a single  
2 angle-of-attack vane, as it was originally designed?

3           A.    Yes.

4           Q.    And is that part of what you would call the  
5 "complete dataset" that you believe would have impacted the  
6 AEG's decision about what level of training to put in place  
7 for the MAX?

8           A.    I believe that if they had it, they might have --  
9 they would have made a different determination.

10          Q.    If they had known about the ratcheting, correct?

11          A.    Yeah, if they had known the extended parameters of  
12 the MCAS.

13          Q.    What about if they had known about the ratcheting?  
14            Is that something that would have impacted their  
15 decision, part of that complete dataset?

16          A.    It could have, yes.

17          Q.    And the single AOA vane, also part of that  
18 complete dataset?

19          A.    It could have, yes.

20          Q.    Why are you saying that "it could have"?

21          A.    I don't know what the thought process was for the  
22 AEG on that. I can only go by what their guidelines are and  
23 how they applied those guidelines to come up with a  
24 determination of the level of training.

25          Q.    Sir, it's your opinion in your report that, if the

1       AEG had the complete set of data, that it would have  
2       impacted their training decision. I'm just trying to  
3       understand the distinction that you're making between your  
4       expert report, where you say it, "would have" impacted their  
5       training, and what I hear you testifying to right now is  
6       that it "could have" impacted their training.

7           A. It would have definitely impacted the training  
8       decision.

9           Q. So why are you just explaining how it certainly  
10       could have impacted their training, but there's a lot that  
11       goes into the thought process, and you can't quite say?

12           A. I'm sorry, say that again.

13           Q. Well, I think that you were just saying, sir, that  
14       there's a lot of considerations that would go into the AEG's  
15       thought process if they had this complete set of data, and  
16       so it could have impacted their decision, but you can't  
17       quite say.

18           A. It definitely would have.

19           Q. That's your opinion now?

20           A. Yes. It would have, because they would have taken  
21       input from the members of the AEG. They would have taken  
22       the information from the appropriate people at Boeing. They  
23       would have had their discussions. They would have applied  
24       their formulas for making the determination and then made  
25       their determination based on that dataset.

1           Q. Sir, I have you -- I think I asked you -- but have  
2 you worked with the Aircraft Evaluation Group before?

3           A. No.

4           Q. And have you worked with Stacey Klein from the  
5 Aircraft Evaluation Group?

6           A. No, I have not.

7           Q. Have you ever met Stacey Klein?

8           A. I have not.

9           Q. So you have no reason to doubt Miss Klein's  
10 credibility or her credentials, correct?

11          A. Correct.

12          Q. Sir, you were asked some questions about the 737  
13 MAX House Committee Report.

14           You didn't author that report, right?

15          A. No, I did not.

16          Q. And did you talk with the authors or anybody who  
17 had input into that particular report?

18          A. No, I did not.

19          Q. And you weren't involved in the committee's  
20 investigation, right?

21          A. I was not.

22          Q. Just taking a look at page 138.

23           THE COURT: Which document are we looking at?

24           MR. JACOBS: Sure. So this is Exhibit 4. This is  
25 Families' Exhibit 4. This is the final committee report.

1                   THE WITNESS: Would you say the page again,  
2 please?

3 BY MR. JACOBS:

4                   Q. Of course.

5                   So I'm looking at page -- I'm looking at page --  
6 if you could turn to page 142 of what's in evidence in  
7 Families' Exhibit 4.

8                   Do you see those pages, sir?

9                   A. I have them.

10                  Q. So page 141 talks about faulty assumptions. And  
11 then page 142, just reading the first paragraph of page  
12 142 -- and I'll just read it. "It is most alarmingly Boeing  
13 made these assumptions despite the fact that it had internal  
14 test data that contradicted them.

15                  "In 2012, for instance, it took one of Boeing's  
16 own test pilots more than 10 seconds during a simulator test  
17 to respond to MCAS activation. The pilot found this  
18 catastrophic.

19                  "Boeing did not inform the FAA about this test  
20 data. It appears to have discounted the test results,  
21 falsely assuming that pilots would quickly recognize and  
22 respond to uncommanded MCAS activation." Do you see that?

23                  A. Yes.

24                  MR. CASSELL: Objection, your Honor. I think the  
25 next sentence should be read in the interest of

1 completeness.

2 MR. JACOBS: Sure.

3 BY MR. JACOBS:

4 Q. "In the end, MCAS played a key role in both MAX  
5 crashes." Do you see that?

6 A. Yes, sir.

7 Q. Now, sir, do you know anything about the  
8 assumptions that Boeing made in the process of going into  
9 those assumptions during the evaluation of the MAX?

10 A. Only what I've read in the documents I was  
11 presented.

12 Q. Do you know who from The Boeing Company was  
13 involved in making those assumptions?

14 A. I do not.

15 Q. Do you know whether any of the technical pilots  
16 from The Boeing Company were involved in making those  
17 assumptions?

18 A. From my readings, I believe they were.

19 Q. Do you know whether Mark Fortner was involved in  
20 the flight test program and the assumptions that were made  
21 with respect to the 737 MAX?

22 A. From the documents I have read, I believe he was.

23 Q. Do you know whether he was?

24 A. Yes.

25 Q. You know Mark Fortner was actually involved in

1 this assumption process and assumptions?

2 A. Oh, I'm sorry. No, I do not know if he was  
3 involved in that assumption process directly.

4 Q. Thank you. Okay.

5 Do you know whether anybody from the flight  
6 technical group was involved in that particular assumption  
7 process that would have worked with Mark Fortner?

8 A. I believe so, based on the documents that I've  
9 read.

10 Q. You believe that they were or you believe they  
11 were not?

12 A. That they were.

13 Q. The technical pilots?

14 A. Yes.

15 Q. Not the test pilots?

16 A. Technical pilots, yes.

17 Q. Okay. You know there's a distinction between -- I  
18 don't mean to belittle you -- there's a distinction between  
19 a test and a technical pilot?

20 A. Yes.

21 Q. Okay. What's your basis to believe that someone  
22 from the flight technical group was actually involved in  
23 test pilot work, in making assumptions about how a pilot  
24 would respond to an erroneous MCAS activation?

25 What's the basis for that?

1                   MR. CASSELL: Your Honor, I would like to object  
2 at this point. I just -- for two grounds. One is the  
3 United States Department of Justice has accessed the Grand  
4 Jury information that is allowing them to formulate a series  
5 of questions about internal Boeing actions that we have not  
6 had access to. It's fundamentally unfair to cross-examine  
7 our witness based on secret information, as well as issues  
8 surrounding potential disclosure of grand jury information.

9                   The second is that we have pending, as your Honor  
10 is aware, a motion for discovery for much of this  
11 information from the Department of Justice. Your Honor has  
12 held ruling on that motion in abeyance. But it seems to me,  
13 once again, we're being unfairly deprived of information  
14 that's allowing the Justice Department to formulate the  
15 questions about internal actions that we are not in a  
16 position to respond to effectively.

17                   MR. JACOBS: Your Honor, the witness is simply  
18 saying --

19                   THE COURT: Let me just stop you. I'm going to  
20 overrule the objection.

21                   You can answer the question, if you can. If you  
22 can't or if you need further information, then you can just  
23 say, "I will need further information."

24                   THE WITNESS: Okay. Thank you, your Honor.

25                   Okay. Would you please restate the question?

1 BY MR. JACOBS:

2 Q. Sure.

3 You've testified that, based on some of the things  
4 that you've reviewed, that you have reason to believe that  
5 technical pilots, which may -- I think you said did not  
6 include Mack Fortner, but other technical pilots may have  
7 been involved in the assumption-making process at The Boeing  
8 Company. I'm asking you what did you read?

9 What is the basis for that statement?

10 A. Again, on the documents that I have read, I  
11 believe that would be the case.

12 Q. And what document do you recall reading where a  
13 technical pilot was involved in making these types of  
14 assumptions?

15 A. Yes, it was the -- I don't know the exact one --  
16 name of that document, but where we had the Statement of  
17 Facts is where I read that and would have made that  
18 assumption.

19 Q. From the Deferred Prosecution Agreement, Statement  
20 of Facts?

21 A. I believe that would be the name of the document.

22 Q. Okay. Sir, if you could also, just while we have  
23 it, turn to page 86 of this same exhibit. Are you there?

24 A. Eighty-six?

25 Q. Yes, sir.

1           A. Yes, I'm there.

2           Q. And under the heading of, "Investigative  
3 Findings," in looking at the last two bullet points,  
4 "Boeing's chief project engineer on the 737 MAX program was  
5 unfamiliar with key design aspects of MCAS when he approved  
6 of its design, including its reliance on a single AOA sensor  
7 and its abilities to activate repeatedly." Do you see that?

8           A. Yes, sir.

9           Q. Mark Fortner was not the chief project engineer,  
10 right?

11          A. Correct.

12          Q. So Mark Fortner was not the person who was  
13 unfamiliar with these key design aspects of MCAS, including  
14 it's reliance on a single AOA sensor, and its ability to  
15 activate repeatedly?

16           That's not what this is saying, correct?

17          A. Correct.

18          Q. And the second bullet, "Boeing's design of MCAS  
19 violated its own internal design requirements, which  
20 demanded that the system not have any 'objectionable  
21 interaction with the piloting of the airplane and not  
22 interfere with discovery' which occurred in both 737 MAX  
23 crashes."

24           Again, this is not referring to Mark Fortner?

25           This is referring to the design and the

1 engineering of MCAS, something that Mark Fortner was not  
2 part of, correct?

3 A. I believe so, but it says there that it violated  
4 its own internal design requirements. I have no idea what  
5 their own internal design requirements were.

6 Q. Do you know whether Mark Fortner was involved in  
7 dealing with Boeing's internal design requirements?

8 A. I have no knowledge of that.

9 Q. There was something that you said earlier, and I  
10 just -- I couldn't quite hear it. I heard you say the first  
11 part of it. You said, It's not my bailiwick, the  
12 machination of," and then there was something about the  
13 crashes.

14 Do you remember something like that?

15 A. Yes. I don't believe I used that word  
16 "bailiwick."

17 Q. I think that you used the word "bailiwick" because  
18 it stood out in my mind.

19 A. Okay. I don't recall that. I may have used it.

20 Q. Sure.

21 So I think what you were saying, though, when you  
22 were being asked some questions by Mr. Cassell about MCAS  
23 and its role in the crashes, I think what you said was,  
24 "This is not my bailiwick, the machination of MCAS and its  
25 role in that crash."

1                   Does that sound familiar to you?

2           A.    Yes.

3           Q.    Is that what you were saying?

4           A.    I believe so, yes.

5           Q.    Do you stand by that?

6           A.    I stand by the statement that I am not educated or  
7           well-versed in MCAS. I feel comfortable in knowing what the  
8           procedures are for accident investigation and approving  
9           training and things of that nature.

10          Q.    You testified that, had the pilots in the Lion Air  
11        flight had information in their manuals about MCAS, that you  
12        believe that that information would have allowed them to  
13        successfully recover and land the plane, right?

14          A.    Yes.

15          Q.    You said that the lack of information,  
16        essentially, didn't allow them to successfully recover that  
17        plane?

18          A.    Correct.

19          Q.    Sir, was there a plane, a flight, right before the  
20        crash flight that also experienced an erroneous MCAS  
21        activation?

22          A.    My understanding, there was.

23          Q.    And what happened to that plane?

24          A.    That plane made a successful landing.

25          Q.    Without information in the manuals about MCAS,

1 correct?

2 A. Yes.

3 Q. You were also asked a series of hypothetical  
4 questions, and the hypos all included some form of, if The  
5 Boeing Company had disclosed MCAS to the AEG, right?

6 Do you remember that, generally being asked as  
7 part of those hypos?

8 A. Yes.

9 Q. But MCAS was disclosed to the AEG, correct?

10 A. I believe it was, yes.

11 Q. Right. And so the AEG did have information about  
12 MCAS existing, correct?

13 A. Yes.

14 MR. CASSELL: Your Honor, could we ask some  
15 clarification on the time frame Mr. Jacobs is referring to  
16 precisely, a little more precision?

17 MR. JACOBS: Sure.

18 BY MR. JACOBS:

19 Q. So during the certification process of the 737  
20 MAX, before the FSB report for the MAX was published, MCAS  
21 was disclosed to the Aircraft Evaluation Group, correct?

22 A. Correct.

23 MR. CASSELL: Your Honor, I'm going to object. My  
24 understanding is that --

25 Could I just have a moment to confer, your Honor?

1                   THE COURT: Well, I'll tell you what. Why don't  
2 we go ahead and take a lunch break now. I have to take care  
3 of some things. So let's start back up at 1:30. 1:30.

4                   MR. CASSELL: Thank you, your Honor.

5                   MR. JACOBS: Thank you, your Honor.

6                   MR. CASSELL: Your Honor, one quick question. Are  
7 we permitted to consult with our witness during the break?

8                   THE COURT: Yes, you can.

9                   MR. CASSELL: Thank you.

10                  (Proceedings adjourned at 12:44 a.m.)

11                  (Proceedings reconvened at 1:31 p.m.)

12                  CONTINUED CROSS-EXAMINATION

13                  BY MR. JACOBS:

14                  Q. Good afternoon.

15                  A. Afternoon.

16                  Q. Sir, you testified that you were familiar with the  
17 Statement of Facts in the Justice Department's Deferred  
18 Prosecution Agreement with The Boeing Company, right?

19                  A. Yes, sir.

20                  Q. And are you familiar with the trial, United States  
21 vs. Mark Fortner?

22                  A. I know of it.

23                  Q. Do you know that Mr. Fortner --

24                  MR. CASSELL: Your Honor, I'm going to object.

25                  You will recall that the United States Department of Justice

1 said that that entire trial was not to raise issues  
2 involving the crashes. That makes it irrelevant to today's  
3 hearing, which obviously does directly involve the crashes.

4 THE COURT: Okay. Well, I will listen to the  
5 answer, and then I will disregard it if it isn't relevant.

6 BY MR. JACOBS:

7 Q. Just one question on that.

8 You know Mr. Fortner was acquitted at that trial,  
9 correct?

10 A. That is my understanding, sir.

11 Q. Now, when was the last time you read the Statement  
12 of Facts from the Deferred Prosecution Agreement, or the  
13 DPA?

14 A. I believe I read through them yesterday briefly.

15 Q. And you testified earlier that your opinions are  
16 consistent with the representations in the Statement of  
17 Facts. You don't agree --

18 You don't disagree with what's in Statement of  
19 Facts?

20 A. I do not disagree.

21 Q. I'm sorry, sir?

22 A. I do not disagree with that.

23 Q. You would agree that the Statement of Facts is  
24 limited to the conduct of two technical pilots, who are  
25 referred to as Boeing Employee 1 and Boeing Employee 2; is

1 that correct?

2 A. Yes, sir.

3 Q. And Boeing Employee 1 we know is Mark Fortner,  
4 correct?

5 A. I do not know that.

6 Q. Okay. Any reason to disagree with that?

7 A. No, sir.

8 Q. Is it only Mr. Fortner and Boeing Employee 2 in  
9 the Statement of Facts who were alleged to have withheld  
10 information about MCAS from the Aircraft Evaluation Group?

11 A. I believe so, yes, sir.

12 Q. Nowhere in the Statement of Facts does it allege  
13 that any Boeing employee, other than Mr. Fortner and Boeing  
14 Employee 2 intentionally withheld information about MCAS  
15 from the Aircraft Evaluation Group, correct?

16 A. I believe so.

17 Q. The Statement of Facts also makes clear that the  
18 only information about MCAS that was alleged to have been  
19 intentionally withheld from the Aircraft Evaluation Group  
20 was that MCAS had been expanded to operate at low speed,  
21 right?

22 A. Correct.

23 Q. Nowhere in the Statement of Facts does it allege  
24 that any other information about MCAS was intentionally  
25 withheld from the Aircraft Evaluation Group, right?

1           A.    That's my understanding, yes, sir.

2           Q.    Nowhere in the Statement of Facts does it allege  
3    that Mr. Fortner or Boeing Employee 2 even knew about all  
4    aspects of how MCAS was designed, correct?

5           A.    I don't recall whether they had that knowledge or  
6    not.

7           Q.    Do you recall anything in the Statement of Facts  
8    where Mr. Fortner or Boeing Employee 2 were alleged to have  
9    known that MCAS relied only on a single AOA event?

10           Do you recall anything like that?

11           A.    I believe so, yes.

12           Q.    You believe you do?

13           A.    I believe so, yes.

14           Q.    And this is what you read yesterday in the  
15    Statement of Facts?

16           A.    I believe so. As I said, I've read many of these  
17    documents, so --

18           Q.    Would it surprise you if that information actually  
19    want wasn't in the Statement of Facts?

20           MR. CASSELL: Your Honor --

21           THE COURT: Hold on.

22           MR. CASSELL: Could I -- there are so many  
23    documents flying around in the case. Could I suggest that,  
24    if the attorney has a question, he identify which document  
25    he's referring to?

1                   THE COURT: It's the Statement of Facts you're  
2 referring to?

3                   MR. JACOBS: The whole time, your Honor.

4                   THE COURT: In the DPA?

5                   MR. JACOBS: Correct.

6                   THE COURT: So do you understand that he's  
7 referring to the DPA?

8                   THE WITNESS: Yes, sir, I do.

9                   THE COURT: The Statement of Facts, the  
10 mid-paragraphs?

11                  THE WITNESS: Yes, sir.

12                  THE COURT: Okay. So now that we got that  
13 document identified, go ahead.

14 BY MR. JACOBS:

15                  Q. So would it surprise you to learn, sir, that there  
16 isn't actually anything in the Deferred Prosecution  
17 Agreement, Statement of Facts about whether Mr. Fortner or  
18 Boeing Employee 2 knew about the single AOA vane feeding  
19 information into MCAS?

20                  Would that surprise you to learn that?

21                  A. I would be.

22                  Q. Okay. Would it surprise you to learn that there's  
23 nothing in the Statement of Facts that Mr. Fortner or Boeing  
24 Employee 2 knew anything about how MCAS could ratchet to an  
25 unlimited degree, essentially putting the plane nose down?

1                   Would it surprise you to learn there's nothing in  
2 the Statement of Facts about that?

3                   A.    I would be surprised, yes, sir.

4                   Q.    Nowhere in the Statement of Facts does it allege  
5 that any Boeing employee intentionally withheld information  
6 about the fact that MCAS relied on a single AOA vane from  
7 anyone at the FAA, right?

8                   A.    I believe so.

9                   Q.    Nowhere in the Statement of Facts does it allege  
10 that any Boeing employee intentionally withheld information  
11 about how MCAS could ratchet to an unlimited degree from  
12 anyone at the Aircraft Evaluation Group -- or at the FAA,  
13 right?

14                  A.    I believe so, yes.

15                  Q.    And nowhere in the Statement of Facts does it  
16 allege that Mr. Fortner or Boeing Employee 2 even knew about  
17 those two particular aspects of MCAS, the single AOA vane,  
18 or the fact it could ratchet to an unlimited degree, right?

19                  A.    I believe so, yes.

20                  Q.    Sir, are you aware that Boeing provided  
21 information about MCAS's engineering design to the FAA's  
22 Aircraft Certification Office?

23                  A.    Yes, sir.

24                  Q.    You are aware of that?

25                  A.    Yes, sir.

1           Q.    You are aware that the Aircraft Certification  
2       Office --

3           MR. CASSELL:  Your Honor, I'm going to object at  
4       this point.  We've been told throughout these proceedings  
5       that the only agency that's at issue is the FAA AEG.  
6       Disclosure of other agencies has nothing to do with the  
7       subject that we're here for today.

8           THE COURT:  What do you say to that?

9           MR. JACOBS:  I would like to understand what the  
10       witness knows and doesn't know about what the FAA knew about  
11       MCAS.  He's up here talking about what decisions the FAA  
12       would make if they knew certain information.

13           The fact is that the FAA did know certain  
14       information about MCAS, and I think it's relevant to this  
15       witness's testimony to understand what he knows.

16           THE COURT:  Okay.  I will allow you.  Go ahead.

17           MR. JACOBS:  Thank you, your Honor.

18       BY MR. JACOBS:

19           Q.  Sir, are you aware that the Aircraft Certification  
20       Office certified the 737 MAX as airworthy for U.S.-based  
21       airlines?

22           A.  Yes.

23           Q.  And there's no allegations in the Statement of  
24       Facts that any information about MCAS was intentionally  
25       withheld from the Aircraft Certification Office, right?

1           A.    I believe that's correct.

2           Q.    The only allegations in the Statement of Facts is  
3 that two Boeing employees, Mr. Fortner and Boeing Employee  
4 2, intentionally withheld one fact about MCAS from the  
5 Aircraft Evaluation Group, specifically, it's low-speed  
6 expansion, right?

7           A.    Basically, yes.

8           Q.    Now, sir, your opinion in your expert report is  
9 that, if the Aircraft Evaluation Group had the "complete  
10 dataset about MCAS, it would have determined that a level of  
11 differences training above Level B would have been  
12 required," right?

13          A.    Yes, sir.

14          Q.    There's no allegations in the Statement of Facts  
15 that Mr. Fortner or Boeing Employee 2 ever had the complete  
16 dataset about MCAS, right?

17          A.    I do not know that.

18          Q.    Based on your review of the statement of the  
19 facts, you do not know?

20          A.    I don't know that they had the complete set. I  
21 would say they did not.

22          Q.    Do you have any reason to believe that they had  
23 complete information about the complete dataset of MCAS?

24                  Or it sounds like you just don't know?

25          A.    I would believe that they had the complete set

1 because they made a determination, based on the information  
2 that they had, the dataset that they had there at the time.

3 Q. Would it surprise you to learn that Mr. Fortner  
4 and Boeing Employee 2 did not have complete information  
5 about that complete dataset about MCAS?

6 A. That would surprise me.

7 Q. If Boeing Employee 2 or Mr. Fortner didn't have  
8 the complete dataset about MCAS, they couldn't have  
9 intentionally withheld that complete dataset from the  
10 Aircraft Evaluation Group, right?

11 That makes sense?

12 A. Yes.

13 Q. Sir, what is your understanding of what was  
14 disclosed to the Aircraft Evaluation Group about MCAS?

15 A. About what, sir?

16 Q. The system that we've been talking about, MCAS --

17 A. Okay.

18 Q. -- what's your understanding about what was  
19 disclosed by The Boeing Company to the Aircraft Evaluation  
20 Group about MCAS?

21 A. My understanding is that they disclosed the  
22 information about MCAS as it was originally designed.

23 Q. What was your understanding of what Mr. Fortner  
24 and Boeing Employee 2 withheld from the Aircraft Evaluation  
25 Group?

1           A.    My understanding is that the parameters of MCAS  
2    were expanded and included much lower airspeeds and that was  
3    the information that was withheld.

4           Q.    Just that limited piece of information?

5           A.    I believe so, yes.

6           Q.    And that's consistent with what's in the Statement  
7    of Facts, correct?

8           A.    Correct.

9           Q.    Preparing for your expert testimony today, did you  
10    review testimony from the trial of Mark Fortner?

11          A.    No, I did not.

12          Q.    I asked you earlier about someone named Stacey  
13    Klein. You said you didn't know Ms. Klein, right?

14          A.    That's correct.

15          Q.    Do you know what Ms. Klein's role was at the FAA?

16          A.    My understanding was she was the chair of the  
17    Aircraft Evaluation Group for the 737.

18          Q.    And you are aware that, after the first plane  
19    crash, the Lion Air crash, the FAA did not require the 737  
20    MAX to be grounded here in the United States, right?

21          A.    That's correct.

22          Q.    And you are aware that, after the Lion Air crash,  
23    the Aircraft Evaluation Group did not require full-flight  
24    simulator training for the MAX in the U.S., correct?

25          A.    Correct.

1           Q.    In fact, the Aircraft Evaluation Group issued an  
2 Emergency Airworthiness Directive.

3           Are you familiar with an Emergency Airworthiness  
4 Directive, or what that is?

5           A.    Yes, sir.

6           Q.    Okay. And that Emergency Airworthiness Directive  
7 told U.S.-based pilots to follow the runaway stabilizer  
8 checklist that all U.S.-based pilots already knew about or  
9 had been trained about, right?

10          A.    Yes.

11          Q.    And you are aware that when the Aircraft  
12 Evaluation Group issued this directive after the first plane  
13 crash, it knew at this point, because of the crash, that  
14 MCAS had been expanded to low speed, right?

15          A.    I'm not sure of the exact point in time in which  
16 the Aircraft Evaluation Group learned of that expansion.

17          Q.    And that piece of information, though, that MCAS  
18 had been expanded to operate at low speed, you've just  
19 agreed was the only piece of information that was alleged to  
20 have been withheld from the Aircraft Evaluation Group by  
21 Mr. Fortner and Boeing Employee 2, correct?

22          MR. CASSELL: Your Honor, I'm going to object. I  
23 believe the government is backing away from paragraph 51 in  
24 the Statement of Facts, which indicates that, even following  
25 the Indonesian Air crash there continued to be misleading

1 representations from Boeing about the scope of MCAS.

2 You have already ruled the presentation today is  
3 restricted to strictly following the Statement of Facts. So  
4 I would object on the basis of paragraph 51.

5 THE COURT: What do you say to that? Because you  
6 are limited to your DPA Statement of Facts.

7 Does this go to something else or are you trying  
8 to back away from it?

9 MR. JACOBS: No. I'm not trying to back away from  
10 it. In paragraph 51, to the extent it talks about  
11 misleading things that happened after the first crash, those  
12 are things that happened inside The Boeing Company and would  
13 be relevant to Boeing Employee 2's state of mind.

14 THE COURT: Right. The crime that Boeing has  
15 admitted to is the conspiracy to defraud, and it includes  
16 what Mr. Fortner and Test Pilot 2 -- Test Pilot 1, Test  
17 Pilot 2 said or didn't say, and all of the information in  
18 the DPA Statement of Facts that would support the offense,  
19 right?

20 And so, is it necessarily limited only to  
21 Fortner's experience in the simulator and what he did and  
22 didn't say, knew or didn't know at the time, or does it  
23 include all of this, including the actions in paragraph 51,  
24 or am I missing it? You think -- you look bewildered, so I  
25 didn't make sense.

1                   MR. JACOBS: I apologize, your Honor.

2                   THE COURT: I guess what I'm wondering is, you're  
3 limited to this Statement of Facts. And these -- this  
4 Statement of Facts, however many paragraphs the DPA set out,  
5 were all of the facts that the government and Boeing  
6 believed would be necessary to support a finding of guilt to  
7 the offense.

8                   And so, it seems to me that what I would need to  
9 evaluate, after all this evidence comes in, is what they say  
10 and what these facts that you have stipulated to say and how  
11 they impact the families.

12                  And so it would include, then, wouldn't it, the  
13 information in paragraph 51?

14                  MR. JACOBS: Correct.

15                  THE COURT: It seems to me that you're saying the  
16 information in paragraph 51 doesn't apply here because it  
17 happened so late in the game, and the real focus is on what  
18 Fortner said or didn't say and Test Pilot 2 said and didn't  
19 say.

20                  What I am wondering is why wouldn't it all be  
21 pertinent to the single charge, whenever it occurred?

22                  MR. JACOBS: I believe it would be, your Honor. I  
23 don't believe we're backing away. I don't believe my  
24 question is intended to back away from paragraph 51.

25                  THE COURT: Okay. Very good. Go ahead and ask

1 your question again.

2 MR. JACOBS: I just do believe it's relevant to  
3 understand the steps that the Aircraft Evaluation Group took  
4 after the first plane crash, particularly when this witness  
5 is opining on what the AEG would have done had it known all  
6 of the information about MCAS.

7 THE COURT: Right.

8 MR. JACOBS: And to the extent that there was a  
9 piece of information that was missing, that was withheld  
10 from the AEG because of Mr. Fortner and Boeing Employee 2 --

11 THE COURT: Right.

12 MR. JACOBS: -- after the first plane crash --

13 THE COURT: They did --

14 MR. JACOBS: -- the AEG now had that information.

15 THE COURT: Right.

16 MR. JACOBS: And still --

17 THE COURT: You're saying that you had plane crash  
18 number 1, AEG knew about it, looked at it; it did nothing.  
19 Didn't change any of the training rating from B to whatever,  
20 up or down.

21 And then after crash number 2 it, likewise, didn't  
22 immediately.

23 And so, your point is what?

24 MR. JACOBS: The point is --

25 THE COURT: Do I understand that right?

1                   MR. JACOBS: Exactly, your Honor.

2                   And to the extent there was one piece of  
3 information that was missing from the AEG, which is the  
4 piece of information that Boeing Employee 2 and Mr. Fortner  
5 conspired to withhold from the AEG, they now had that after  
6 the first crash, and the outcome for the AEG was still the  
7 same.

8                   They were continuing to evaluate MCAS further,  
9 which is what the Statement of Facts lays out. There was  
10 still an ongoing investigation. But at that point, that gap  
11 about that one piece of information that is alleged to have  
12 been withheld, that gap was filled, and their decision was  
13 still to keep the planes flying without simulator training.

14                  THE COURT: Okay.

15                  MR. JACOBS: So I think it's -- the facts  
16 themselves are contrary to the expert's opinion about what  
17 the -- what the witness would know -- would opine should  
18 have happened.

19                  MR. CASSELL: If I could be heard briefly?  
20 Paragraph 51, and that's post-Lion Air and pre-Ethiopian,  
21 that says, "In connection with this investigation" -- that  
22 is figuring out what happened -- "Boeing Employee 2 caused  
23 Boeing to represent in a presentation to the FAA AEG that,  
24 during the training evaluation process, Boeing and the FAA  
25 AEG had discussed and agreed on the removal of MCAS from the

1 737 MAX, FSB report and associated materials.

2 "This representation was misleading because Boeing  
3 Employee 2 had failed to disclose the shocker alert chat  
4 communication and the fact that the FAA AEG was deprived of  
5 relevant information about the MCAS."

6 So when he says there was only one piece of  
7 information that was missing and now the world is fine  
8 post-Indonesian crash, that is backing away from what their  
9 paragraph 51 says. So I object to the premise of that  
10 question.

11 THE COURT: Okay. I think I understand the facts.

12 So I'm going to allow you to ask that question, to  
13 the extent it affects the witness's opinion, and, it either  
14 does or it doesn't. And so, I will look at the answer to  
15 this question with what I think -- what I think is a full  
16 understanding of the facts.

17 So go ahead and ask it.

18 BY MR. JACOBS:

19 Q. So just going back to your opinion that, if the  
20 AEG had the complete dataset about MCAS, that it would have  
21 required full-flight simulator training, that actually  
22 didn't play out after the first plane crash, correct?

23 A. That's correct.

24 Q. Right.

25 After the first plane crash, not only did the AEG

1 know at that point that MCAS had been expanded to low speed,  
2 but they also learned from the Lion Air crash that MCAS  
3 could ratchet and push the nose of the plane all the way  
4 down, and they also learned that the AOA vane, that one AOA  
5 vane that fit into MCAS, they had, at this point, the  
6 complete dataset, right?

7 MR. CASSELL: Objection, your Honor. The  
8 "complete dataset," I assume, would have included -- would  
9 have included disclosure of the "shocker alert"  
10 communication and the fact that Boeing had previously  
11 deprived it of information?

12 They are backing away from what they told the  
13 world in paragraph 51; I object.

14 THE COURT: Okay. Overruled.

15 With that explanation, you can answer.

16 THE WITNESS: Okay.

17 Would you please restate the question, sir?

18 THE COURT: Well, do you think they had a full set  
19 of facts at that point is what Mr. Cassell is adding to the  
20 question?

21 The question is, after crash number 1, they knew  
22 what was going on here. So whatever Fortner and his  
23 colleague had withheld, you've got a crash, they now know  
24 what was going on here, and they didn't act in the way you  
25 think they should have acted at that point.

1                   So what's your take on that?

2                   THE WITNESS: My take on that is that with crash  
3 investigations, they do not come up with a probable cause  
4 within a week, month. Many cases, it's a year or two years  
5 before they finally come out with their final report.

6                   At that point, they probably had not even had an  
7 interim report. They probably had, in accordance with ICAO  
8 Annex 13, would have invited the NTSB, the manufacturer of  
9 the aircraft, the engine manufacturer, to participate in an  
10 investigation.

11                  One of the first things they might have would be  
12 the cockpit voice recorder, which would give them an  
13 indication of what was happening. Very sophisticated. They  
14 can tell by the sounds what is happening, what switches are  
15 being thrown, which trims are moving and which direction  
16 they're moving. That all takes times to digest.

17                  The AEG has probably, at that point, had an  
18 inkling of what the issue was, but they would not have made  
19 a rush to judgment based on the preliminary information that  
20 they had, and would probably have been sitting there, going,  
21 we need a little bit more information before we can pass  
22 judgment.

23                  The AEG is not the one that makes the  
24 determination of what happened. They depend on other parts  
25 of the agency to feed them information. At that point, they

1 may have suspected that the information that they had  
2 received was incomplete and would be trying to determine  
3 what the complete information was.

4                   At that point, they would begin to make a  
5 formulated decision, but it's a government agency, and they  
6 do not move quickly.

7                   And when you have an accident, it takes time to do  
8 that investigation and come up with probable cause, and --  
9 within probably a few days or a month after an accident such  
10 as that, probably they do not -- did not have enough  
11 information to make a determination that they needed to  
12 change anything in the FSB.

13 BY MR. JACOBS:

14               Q. So when they issued the aircraft -- the Emergency  
15 Airworthiness Directive, that was just a couple of weeks  
16 after the first plane crash, right?

17               A. Yes.

18               Q. And in the Emergency Airworthiness Directive, at  
19 the time that they issued that report, the AEG knew that  
20 there was a system on the plane called MCAS, and that it  
21 could operate all the way down to low speed, right?

22               A. I believe they knew at that point, yes.

23               Q. Right.

24                   So at that point, they had the one piece of  
25 information that Mr. Fortner and Boeing Employee 2 had

1 withheld from them, correct?

2 A. Correct.

3 Q. And even with that one piece of information, they  
4 still did not require full-flight simulator training,  
5 correct?

6 MR. CASSELL: Objection, your Honor. That's  
7 assuming facts not in evidence. He's assuming that the FAA  
8 AEG, within three minutes, could have changed a  
9 certification rule.

10 They need to lay the foundation that it was even  
11 mechanically possible for the bureaucracy to make a reversal  
12 of earlier decisions in the sort of time frame he's asking  
13 questions about.

14 THE COURT: Overruled. I think he answered.

15 Did you answer "correct"? No?

16 What's your answer to that question?

17 THE WITNESS: Okay. Would you restate the  
18 question again, please.

19 BY MR. JACOBS:

20 Q. Sure.

21 So, at the time that the AEG published the  
22 Emergency Airworthiness Directive, they knew about MCAS,  
23 right?

24 A. They knew about MCAS, yes, sir.

25 Q. And they knew that MCAS had been expanded to

1 operate at low speed, correct?

2 A. I believe so, yes. Probably, they did.

3 Q. And that's the information in the Statement of  
4 Facts that Mr. Fortner and Boeing Employee 2 withheld from  
5 the AEG, correct?

6 A. Correct.

7 Q. Even having that information, the AEG did not  
8 require full-flight simulator training for the 737 MAX at  
9 that point in time, correct?

10 A. Correct.

11 Q. And, sir, just listening to you a moment ago  
12 answer Judge O'Connor's questions, it sounds to me like  
13 airplane crashes are incredibly complicated, complex things  
14 to digest, right?

15 A. They are.

16 Q. Sounds like there's a lot to understand when  
17 you're trying to understand what caused a plane to crash,  
18 right?

19 A. Correct.

20 Q. You're familiar with a man named David Loffing?

21 A. David?

22 Q. Loffing. L-o-f-f-i-n-g?

23 A. I believe I've seen that name, sir.

24 Q. Do you know whether Mr. Loffing testified at the  
25 trial of United States vs. Mark Fortner?

1           A. I do not recall.

2           Q. Have you read any transcripts from that trial  
3 where Mr. Loffing testified that how MCAS was designed and  
4 performed was one of the links, along with other -- many  
5 others, that contributed to the accidents?

6           Have you read anything like that?

7           A. I don't believe so, no.

8           Q. You would agree with Mr. Loffing that in each of  
9 these crashes, there were many links in the chain that led  
10 to these crashes, right?

11          A. Yes.

12          Q. And in a plane crash of a complex commercial  
13 airplane, in your experience, there are typically many links  
14 in the chain that lead to a crash, right?

15          A. Yes.

16          Q. And what we're talking about in this case is not  
17 an act of terrorism or someone putting a bomb on the plane  
18 and it caused that plane to crash, right?

19          A. Right.

20          Q. There's no allegations that anyone engaged in any  
21 sort of intentional act to cause these planes to crash,  
22 correct?

23          A. My expert opinion is that by withholding the  
24 information from the AEG and the cascading effect, it  
25 ultimately led to two aircraft crashing with catastrophic --

1                   THE COURT: I mean, isn't that the ultimate  
2 question we have here, right?

3                   MR. JACOBS: Of course.

4                   THE COURT: If it's an intentional crime?

5                   MR. JACOBS: Of course.

6                   THE COURT: And then there's the contention of the  
7 movants that it's a direct and proximate cause.

8                   MR. JACOBS: Sure. And his opinion, though, is  
9 based on the AEG having this complete set of data. The only  
10 thing that was withheld from the AEG was one piece of  
11 information. And the people who withheld that piece of  
12 information didn't actually have the complete set of data --

13                  THE COURT: Right.

14                  MR. JACOBS: -- to share with the AEG.

15                  THE COURT: Right. No, I'm with you. I  
16 understand everything.

17                  MR. JACOBS: Okay. Thank you, your Honor.

18 BY MR. JACOBS:

19                  Q. Sir, I just want to ask you, are you aware of a  
20 PowerPoint presentation that some employees from the FAA  
21 created that said that Mr. Fortner was not responsible for  
22 either of the plane crashes?

23                  A. I am not.

24                  Q. These are people who worked at the FAA where you  
25 worked, correct, sir?

1                   MR. CASSELL: Objection, your Honor. This seems  
2 to be getting into issues that are entirely separate from  
3 this particular hearing involving two particular plane  
4 crashes.

5                   I mean, is the government vouching for the  
6 accuracy of that PowerPoint? The truth of that PowerPoint?

7                   THE COURT: I don't think they are.

8                   MR. CASSELL: So then I would object on that  
9 ground as well. Are they saying this is reliable  
10 information?

11                  When, a few months ago, they were in this  
12 courtroom saying --

13                  THE COURT: Let me just stop you there.

14                  I mean, you've not seen that document, right?

15                  THE WITNESS: No, sir, I have not.

16                  THE COURT: Okay. Very good.

17 BY MR. JACOBS:

18                  Q. Are you aware that that PowerPoint said that the  
19 737 MAX accidents were caused by a failure of the  
20 engineering --

21                  THE COURT: Well, he hasn't seen the document.

22                  MR. JACOBS: I just want to make clear for the  
23 record that he hasn't understood or seen those  
24 representations. I appreciate where your Honor is coming  
25 from. I'm happy to move on.

1                   THE COURT: Right. Yeah, I think so. He hasn't  
2 seen the document, so he can't affirm it or dispute it.

3 BY MR. JACOBS:

4                   Q. Now, you said you read the Statement of Facts.  
5 There's no allegation in the Statement of Facts in the DPA  
6 that Mr. Fortner or Boeing Employee 2 were involved in the  
7 engineering certification process for the MAX, right?

8                   A. I believe so, correct.

9                   Q. And, sir, you also talked about the crash reports  
10 that were prepared by Indonesian and Ethiopian authorities.

11                  In the Indonesian crash report, which is in  
12 evidence as families' Exhibit 2, you are aware that the  
13 report listed nine contributing factors that led to these  
14 crashes, right?

15                  A. I reviewed that, yes.

16                  Q. And those are on page 215 of families' Exhibit 2;  
17 is that right?

18                  A. Yes.

19                  Q. And you are aware that only one of those nine  
20 contributing factors mentions pilot training and several  
21 others focus on the design and certification of MCAS, right?

22                  A. Yeah. Yes.

23                  Q. And in the Ethiopian crash report, you are aware  
24 that there are several findings and safety recommendations  
25 which are on page -- I believe it's page 132 of that report,

1 correct? That's families' Exhibit 3.

2 A. On what page again, sir?

3 Q. Sure. Page 132.

4 A. Yes, sir, I have seen that.

5 Q. And you are aware that these findings and  
6 recommendations mention pilot training, but also the faulty  
7 engineering design of MCAS as contributing to the crash,  
8 right?

9 A. Yes.

10 Q. And nothing in the Statement of Facts in the DPA  
11 alleges that Mr. Fortner or Boeing Employee 2 knew anything  
12 about how MCAS was designed by Boeing's engineers, right?

13 A. Correct.

14 Q. There's no information in the Statement of Facts  
15 that Mr. Fortner or Boeing Employee 2 knew that MCAS relied  
16 only on a single AOA vane, correct?

17 A. Right.

18 Q. There's no information or allegations in the  
19 Statement of Facts that Mr. Fortner or Boeing Employee 2  
20 withheld information about MCAS, relying only on one AOA  
21 vane from the Aircraft Evaluation Group, correct?

22 A. Correct.

23 Q. And there's no information in the Statement of  
24 Facts that Mr. Fortner or Boeing Employee 2 knew that MCAS  
25 could ratchet to an unlimited degree, right?

1           A.    Correct.

2           Q.    There's no information in the Statement of Facts  
3    that Mr. Fortner or Boeing Employee 2 withheld information  
4    about MCAS being able to ratchet to an unlimited degree from  
5    the AEG, right?

6           MR. CASSELL: Objection, your Honor. I think that  
7    misstates the Statement of Facts. The shocker alert email  
8    that we are all aware of talks about the MCAS running  
9    rampant.

10           And so "running rampant" seems to me to very  
11    easily encompass the sorts of things Mr. Jacob is suggesting  
12    are not in the Statement of Facts.

13           Once again, I am very concerned that the  
14    government is backing away from what they agreed to because  
15    it's convenient for them in this hearing.

16           THE COURT: Okay. Overruled.

17           You can take into account that email that he  
18    mentioned.

19           THE WITNESS: Okay.

20           Would you restate that, please?

21 BY MR. JACOBS:

22           Q.    Let me ask you, sir. There is no information that  
23    Mr. Fortner or Boeing Employee 2 had what you called this  
24    complete set of data that would have impacted the AEG's  
25    decision about pilot training, right?

1           A.    Okay.  And we are still referring to the  
2 Indonesian accident report?

3           Q.    No.  I'm referring to what's in the Statement of  
4 Facts.

5           A.    Okay.

6           Q.    There's nothing in the Statement of Facts that  
7 alleges that Mr. Fortner or Boeing Employee 2 ever had what  
8 we've talked about as the complete set of data that you say  
9 that if the AEG had it, it would have impacted their  
10 training decision, right?

11          A.    Yes.

12          Q.    They never had that complete set of data, right?

13          A.    Mr. Fortner never had that?

14          Q.    As it's laid out in the Statement of Facts,  
15 there's no allegation or information that Mr. Fortner or  
16 Boeing Employee 2, ever had a complete set of data, right?

17          A.    Correct.

18          Q.    And, sir, you testified that you are not familiar  
19 with how MCAS was designed, right?

20          A.    That is correct.

21          Q.    You never worked with the AEG, right?

22          A.    No, sir.

23          Q.    You are not an expert in investigating the causes  
24 of plane crashes, right?

25          A.    I have been trained, and I have conducted and

1 participated in numerous aircraft accidents.

2 Q. Have you ever been qualified as an expert in  
3 federal court for any purpose, sir?

4 A. No, sir.

5 Q. Have you ever been qualified to provide any sort  
6 of expert opinion on the cause of a plane crash in federal  
7 court?

8 A. No, sir.

9 Q. And your report offers no opinion as to the cause  
10 of either crash, right?

11 A. I believe that I indicated that -- one of the  
12 causal factors was that the pilots were not properly  
13 trained. They did not get complete training because there  
14 was information missing.

15 Q. I think you've also testified, sir, that plane  
16 crashes are complicated and often there are a number of  
17 causes that goes into what causes any particular plane  
18 crash, right?

19 A. Yes, sir.

20 Q. And you talked about your experience investigating  
21 plane crashes and reading plane crash reports.

22 In your experience, there is often a number of  
23 causes that go into why a commercial airplane crashes,  
24 correct, sir?

25 A. It's usually a domino-type of effect, yes.

1           Q.    And nowhere in your report does it say that anyone  
2 at Boeing did anything intentional that they could  
3 reasonably foresee would cause two planes to crash, right?

4           A.    Right.

5           MR. JACOBS:   Thank you, your Honor.

6           Actually, may I have one moment, your Honor?

7           While I'm here, your Honor, just renew our objection to the  
8 witness being able to provide the opinion that the AEG would  
9 have known something.

10           THE COURT:   Yeah, let's just hold all of that.  
11           Let's get the evidence in. I will carry that objection  
12 through the whole hearing.

13           MR. JACOBS:   Thank you, sir.

14                           CROSS-EXAMINATION

15           BY MR. HANEY:

16           Q.    Mr. Keyes, good afternoon.

17           A.    Good afternoon, sir.

18           Q.    I think you testified you've been a certificated  
19 pilot for about 50 years; is that right?

20           A.    Yes, sir.

21           Q.    But you're not qualified in the 737 MAX or any  
22 other 737 model, right?

23           A.    That is correct.

24           Q.    You've never flown the Boeing 737 as a commercial  
25 pilot, correct?

1                   A.    Correct.

2                   Q.    You've never completed pilot training on the 737

3 MAX?

4                   A.    That is correct.

5                   Q.    You've never completed difference training between

6 737 NG and the 737 MAX?

7                   A.    That is correct.

8                   Q.    You offer opinions regarding the 737 MAX aircraft

9 flight manual and checklist; is that right?

10                  A.    Yes, sir.

11                  Q.    But you're not an expert on that manual or those

12 checklists, correct?

13                  A.    Not an expert, no, sir.

14                  Q.    You described on direct examination there is a

15 team at the FAA that reviews those manuals and checklists,

16 right?

17                  A.    Yes.

18                  Q.    And you've never been a part of that team in your

19 duties at the FAA, correct?

20                  A.    No.

21                  Q.    Now, sir, you're not an expert on memory items and

22 procedures for the runaway stabilizer checklist on the 737,

23 correct?

24                  A.    Correct.

25                  Q.    And you've never trained on the runaway stabilizer

1 procedure in a 737, either simulator or aircraft, right?

2 A. Correct.

3 Q. Sir, you also offer opinions on what the FAA and  
4 the Flight Standardization Board would have done if it had  
5 more data about MCAS; is that fair?

6 A. Yes, sir.

7 Q. And Mr. Keyes, you are a retired FAA employee who  
8 still works in a contract capacity at the FAA Academy,  
9 right?

10 A. I do.

11 Q. Would you agree the FAA is a large organization  
12 with many different parts?

13 A. Yes, sir.

14 Q. And those many different parts fulfill many  
15 different functions; is that fair?

16 A. Yes, sir.

17 Q. In your report, you talk about the FAA AEG, right?

18 A. Yes, sir.

19 Q. And that's the group at the FAA responsible for  
20 determining differences training, among other things? Fair?

21 A. Yes, sir.

22 Q. But during your time at the FAA, you never  
23 actually worked for the AEG, right?

24 A. I never did, no, sir.

25 Q. You also talk about the Flight Standardization

1 Board, correct?

2 A. Yes, sir.

3 Q. And that's the board responsible for determining  
4 requirements for pilot type ratings, developing minimum  
5 training requirements and ensuring initial flight crew  
6 member competency in accordance with published guidelines,  
7 correct?

8 A. Correct.

9 Q. During your time at the FAA, Mr. Keyes, you never  
10 served on a Flight Standardization Board, correct?

11 A. No, I did not.

12 Q. You also talk about the Aircraft Certification  
13 Office in your report, right?

14 A. Yes, sir.

15 Q. And that's the group at the FAA that performs  
16 aircraft certification duties, right?

17 A. Correct.

18 Q. During your time at the FAA, you never served or  
19 worked for an Aircraft Certification Office, correct?

20 A. I did not.

21 Q. You'd agree that the AEG is different and has  
22 different responsibilities than the Aircraft Certification  
23 Office, correct?

24 A. Correct.

25 Q. For example, the AEG cannot issue a type

1 certificate, correct?

2 A. That is correct.

3 Q. And the Aircraft Certification Office cannot  
4 determine pilot differences requirements, right?

5 A. Correct.

6 Q. Mr. Keyes, you also offer opinions on what foreign  
7 operators depend on when it comes to the FAA's Flight  
8 Standardization Board report, correct?

9 A. Correct.

10 Q. Sir, you've never worked for a foreign airline  
11 carrier, right?

12 A. That is correct.

13 Q. And you've never been involved in designing  
14 training for a foreign airline carrier?

15 A. No, sir.

16 Q. You've never worked for a foreign aircraft  
17 regulator, right?

18 A. No, sir.

19 Q. You've never been involved in making training  
20 decisions for a foreign aircraft regulator, correct?

21 A. No.

22 Q. You've never sat in on technical familiarization  
23 meetings between Boeing, the FAA, and foreign regulators,  
24 right?

25 A. Yes.

1           Q.    And you're not aware of what type of information  
2 Boeing provides to foreign regulators during those meetings,  
3 right?

4           A.    Correct.

5           Q.    For example, you couldn't say, one way or the  
6 other, whether Boeing provided information about MCAS to  
7 foreign regulators during technical familiarization meetings  
8 during the certification of the MAX, right?

9           A.    Correct.

10           MR. CASSELL: Objection, your Honor. At this  
11 point Boeing is starting to back away from its initial  
12 admission Statement of Facts, which was that it never  
13 disclosed the MCAS information to anyone, as I read the  
14 Statement of Facts Boeing presented.

15           THE COURT: Is that true as to anyone, as opposed  
16 to the FAA and the AEG?

17           MR. HANEY: It was to the FAA AEG.

18           MR. CASSELL: Your Honor, it's a Statement of  
19 Facts.

20           MR. HATCH: The DPA and the Statement of Facts  
21 actually make clear that Boeing disclosed information about  
22 MCAS's expanded operational scope to other portions of the  
23 FAA.

24           THE COURT: Right. No, I understand the other  
25 portions argument. I've sat through the trial on that.

1                   But in terms of the Statement of Facts, I'm just  
2 curious about the Statement of Facts. Is the Statement of  
3 Facts limited to disclosure to AEG?

4                   MR. HANEY: The Statement of Facts is focused on  
5 Boeing Employee 1 and Boeing Employee 2's withholding of  
6 information from the FAA AEG to be sure, your Honor.

7                   THE COURT: Right.

8                   And so my question to you, because the objection  
9 is that it's more broad than that. And you disagree with  
10 that?

11                  MR. HANEY: I will tie this up, your Honor --

12                  THE COURT: Go ahead.

13                  MR. HANEY: -- when we get to the questions about  
14 the Lion Air report.

15 BY MR. HANEY:

16                  Q. And Mr. Keyes, just to be clear, have you ever  
17 been qualified for a -- by a court as an expert in anything?

18                  A. No, sir.

19                  Q. Your opinions in this case are based on your  
20 education and experience, correct?

21                  A. And my review of the documents presented, yes,  
22 sir.

23                  Q. And your review of the documents presented.

24                  But you didn't -- haven't applied any scientific  
25 methodology, right?

1           A.    Correct.

2           Q.    For example, with respect to your training level  
3 determination opinion, your opinions are based on your  
4 review of the materials and your understanding of what the  
5 Flight Standardization Board actually did, correct?

6           A.    Correct.

7           Q.    You haven't done any analysis of your own to try  
8 to replicate the Flight Standardization Board's decision,  
9 right?

10          A.    Correct.

11          Q.    You testified on direct about the AEG, they use  
12 formulas to help them come up with their Flight  
13 Standardization Board determinations, right?

14          A.    Yes, sir.

15          Q.    And you are not familiar with those formulas,  
16 correct?

17          A.    No.

18          Q.    And you couldn't use those formulas to make a  
19 determination about what the FSB would have done on your  
20 own, right?

21          A.    Probably not.

22          Q.    And one of the reasons for that in this case is  
23 that you testified that machinations of MCAS is not your  
24 bailiwick, and you just have a rudimentary understanding of  
25 MCAS, correct?

1           A.    Correct.

2           Q.    And in order to do the work that the AEG and the  
3 FSB did, you'd need to understand how MCAS worked, correct?

4           A.    Correct.

5           Q.    And you just don't have that expertise, right?

6           A.    Correct.

7           Q.    I want to turn to another opinion you submitted in  
8 the case. And you say your --

9                   You write in your opinion that, "There were two  
10 fatal 737 MAX accidents, Lion Air and Ethiopian Air, which  
11 were caused by faulty MCAS and the crews' lack of  
12 knowledge/training on how to properly deal with the  
13 emergency"; is that right?

14           A.    Yes, sir.

15           Q.    And so, even on the face of your opinion, you  
16 identify two potential causes of the accident: Faulty MCAS,  
17 one, and the crews' lack of knowledge and training for how  
18 to properly deal with the emergency, two, correct?

19           A.    Yes, sir.

20           Q.    I'm not going to rehash the different findings  
21 that the Indonesian authorities made in their accident  
22 report or the Ethiopian authorities made in their interim  
23 report, but would you agree with me that you haven't done  
24 any analysis of those findings or those contributing factors  
25 to determine which of those multiple contributing factors

1 and findings are more or less important than any other one?

2 A. I have not.

3 Q. Another of your opinions, sir, deals with foreign  
4 operators. That your opinion is that all operators,  
5 domestic and foreign, of the 737 MAX depend on the FAA for  
6 appropriate and accurate information regarding aircraft that  
7 they approve and the training they recommend, right?

8 A. Yes, sir.

9 Q. You'd degree, however, that foreign governments,  
10 foreign regulators, actually set the training requirements  
11 for their carriers?

12 A. They do.

13 Q. For example, Lion Air's requirements are set by  
14 Indonesian authorities, and Ethiopian Airline's requirements  
15 are set by the Ethiopian authorities, right?

16 A. Yes.

17 Q. In fact, in your report you concede that foreign  
18 operators of Boeing 737 MAX aircraft are not required to  
19 follow the recommendations of the Flight Standardization  
20 Board Report, right?

21 A. Correct.

22 Q. And you said on direct examination that certain  
23 countries with less resources would be more likely to follow  
24 the FAA Flight Standardization Board Report, correct?

25 A. Correct.

1           Q.    But you haven't done any analysis to determine  
2 which countries actually did and did not follow the Flight  
3 Standardization Board Report, right?

4           A.    Correct.

5           Q.    You would agree that it's at least possible that  
6 the Indonesian authorities or the Ethiopian authorities  
7 might have set different training requirements than the FAA?

8           A.    Yes.

9           Q.    Foreign regulators don't always just follow the  
10 FAA, right?

11          A.    No.

12          Q.    That's correct, they don't always follow the FAA?

13          A.    That's correct.

14          Q.    And foreign regulators don't always just accept  
15 the FAA's determinations, correct?

16          A.    Correct.

17          Q.    In fact, Mr. Cassell showed you Exhibit 5 and  
18 Exhibit 6, the Boeing emails, and those emails actually show  
19 that foreign regulators can make their own decisions, right?

20          A.    That is correct.

21          Q.    And you are aware that foreign regulators are  
22 permitted to ask their own questions to Boeing for their own  
23 purposes, right?

24          A.    Correct.

25          Q.    In fact, if you look at Exhibit 2, the Lion Air

1 report, on page 156 -- I will give you a minute.

2 A. Page again, sir?

3 Q. 156. It's Section 1.17.8.

4 MR. CASSELL: Which one is this?

5 MR. HANEY: Exhibit 2, Lion Air report.

6 BY MR. HANEY:

7 Q. You see there's a reference to a type certificate  
8 validation meeting conducted by the Indonesian DGCA for the  
9 Boeing 737-8 MAX? Do you see that?

10 A. Yes, sir.

11 Q. And it looks like it was a nine-day meeting held  
12 at the Boeing facility in Renton, Seattle, Washington,  
13 correct?

14 A. Yes, sir.

15 Q. And if you look down to the fourth paragraph, it  
16 actually says, "The Maneuvering Characteristic Augmentation  
17 System, MCAS, was discussed during this system  
18 familiarization of Boeing 737-8 on the MAX." Do you see  
19 that?

20 A. No, I do not.

21 Q. It's the fourth paragraph down. The paragraph  
22 starts, "The agenda of the TC validation where system  
23 familiarization is presented by Boeing and certification  
24 discussion based on" --

25 A. Oh, okay. Yes, I see that.

1           Q.    And it says the MCAS system was discussed during  
2 system familiarization on the MAX, right?

3           A.    Yes, sir.

4           Q.    All right. Let's move on to another one of your  
5 opinions about Boeing's omission of information about MCAS  
6 from the AEG.

7                 It's your opinion that the Level B determination  
8 that the AEG and the Flight Standardization Board made back  
9 in 2016, 2017 was erroneous, correct?

10          A.    Correct.

11          Q.    And that, if Boeing Employee 1 and Boeing Employee  
12 2 had not omitted information about MCAS from the AEG, the  
13 Flight Standardization Board would have made a different  
14 training level determination, correct?

15          A.    Probably, yes.

16          Q.    Now, sir, again, you know, I will be brief on  
17 this, but when you say complete dataset was withheld from  
18 the AEG in your opinion, you understand that the only thing  
19 that Boeing Employee 1 and Boeing Employee 2 withheld from  
20 the AEG, according to the Statement of Facts, is MCAS's  
21 expanded operational scope, the fact that MCAS could  
22 function at lower speeds, correct?

23          A.    Correct.

24          Q.    So you agree the FAA AEG was not aware of  
25 low-speed MCAS in 2016, right?

1           A.    Correct.

2           Q.    And it's your opinion that if Boeing's technical  
3        pilots, Employee 1 and Employee 2, had disclosed low-speed  
4        MCAS to the AEG in 2016, then the Flight Standardization  
5        Board would have required that flight crews have simulator  
6        training, right?

7           A.    Correct.

8           Q.    Let's talk for a minute about what training was  
9        required after the AEG became aware of low-speed MCAS.

10           You stated you agree with the Statement of Facts,  
11        right?

12           You testified earlier you agree with the Statement  
13        of Facts. You don't dispute it, correct?

14           A.    Oh, yes, sir.

15           Q.    Okay. And from paragraph 49 in the Statement of  
16        Facts, "Following the Lion Air crash, the FAA AEG learned  
17        that MCAS activated during the flight and may have played a  
18        role in the crash. The FAA AEG also learned for the first  
19        time about MCAS's expanded operational scope," correct?

20           A.    Correct.

21           Q.    You'd agree it became well known after the Lion  
22        Air crash that MCAS could operate at both high and low  
23        speeds, correct?

24           MR. CASSELL: Objection, your Honor.

25           Could we have some clarification?

1                   Obviously, it became well known by 2022. What  
2 time frame is the -- is he referencing to?

3 BY MR. HANEY:

4 Q.    Are you aware, sir, that --

5                   I will rephrase that question.

6                   Would you agree that, prior to the Ethiopian  
7 Airlines crash in March of 2019, it was well known that MCAS  
8 could operate at both high speeds and low speeds?

9 A.    I would say probably.

10 Q.    You know, I'm sure you've seen in the press,  
11 reporting following the Lion Air crash regarding MCAS,  
12 right?

13 A.    I would believe the press would be suspect.

14 Q.    Okay, sir.

15                   You are aware that, following the Lion Air  
16 accident but prior to the Ethiopian Airlines accident,  
17 Boeing issued a flight crew operations manual bulletin  
18 related to the Lion Air accident, correct?

19 A.    Correct.

20 Q.    You are welcome to look at it, but it's page 288  
21 of the Lion Air report, Exhibit 2, if you need to.

22                   You are aware that that bulletin went to all 737  
23 MAX operators, right?

24 A.    It was distributed in that manner.

25 Q.    And you would agree that the Boeing flight crew

1 operator's manual bulletin pointed to existing procedures,  
2 the runaway stabilizer procedure, to address the condition  
3 experienced on the Lion Air accident flight, right?

4 A. Correct.

5 Q. You are also aware that the FAA published an  
6 emergency airworthiness directive in November 2018, again  
7 before the Ethiopian Airlines crash, right?

8 A. Yes.

9 Q. And you are aware that that airworthiness  
10 directive also goes to all 737 MAX operators, correct?

11 A. Correct.

12 Q. And you would agree that the FAA's airworthiness  
13 director pointed to -- also pointed to existing procedures,  
14 the runaway stabilizer procedure, to address the condition  
15 experienced on the Lion Air flight, right?

16 A. Correct.

17 Q. You are aware that on November 10th, 2018, Boeing  
18 published a multi-operator message that described MCAS and  
19 the fact that it could operate at speeds approaching stalls,  
20 correct?

21 A. Correct.

22 Q. And that's at page 290 of the Lion Air report,  
23 Exhibit 2 for the record.

24 As an experienced aviation professional, when  
25 someone says "speeds approaching stalls," that's low speeds,

1 right?

2 A. For the most part, yes.

3 Q. You would agree that, prior to the Ethiopian  
4 Airlines crash, neither the FAA nor any other international  
5 regulator required simulator training?

6 A. That's correct.

7 Q. In fact, prior to the Ethiopian Airlines crash  
8 neither the FAA or any other international regulator  
9 required any additional training at all beyond just updating  
10 the manual to reference existing procedures, correct?

11 A. Correct.

12 Q. And that procedure, the runaway stabilizer  
13 procedure, that's one that all pilots are trained on,  
14 correct?

15 A. Correct.

16 Q. And that's a procedure that all pilots have always  
17 been trained on, right?

18 A. That is a common training item.

19 Q. So, Mr. Keyes, to sum up, you'd agree that we  
20 don't know what the FAA AEG would have done about training  
21 in 2016 had they known about low-speed MCAS, correct?

22 A. I believe that they probably would have made a  
23 different determination had they had all of the information  
24 about the expansion of MCAS to a lower speed.

25 Q. And we will get to this, but to use your words,

1       "they probably would have."

2           It's conceivable they wouldn't have, correct?

3       A.    Conceivable they would have, yes.

4       Q.    Conceivable they would not have, correct?

5       A.    No.   I'm saying it was conceivable that, had they  
6       had the full information, that they would have made a  
7       determination to go to a higher level of training as opposed  
8       to Level B.

9       Q.    I'm with you, sir.

10           And so it's conceivable they would have made that  
11       higher determination, and it's conceivable they would not  
12       have; we just don't know, correct?

13       A.    Correct.

14       Q.    We do know what the AEG did in 2018, after the  
15       Lion Air crash, but before the Ethiopian Airlines crash,  
16       with respect to requiring simulators for MCAS, correct?

17       A.    I don't feel that between the Lion Air and the  
18       Ethiopian crash, I do not believe that there was any  
19       indication that the AEG made a requirement for simulator  
20       training.

21       Q.    Right.   So after the Lion Air crash, but prior to  
22       Ethiopian Airlines crash, after the FAA AEG was aware of  
23       low-speed MCAS, they never determined to require simulator  
24       training on MCAS for the MAX, correct?

25       A.    Correct.

1           Q. Sir, you'd agree that not all differences between  
2 aircraft need to be trained, right?

3           A. No.

4           Q. You do agree with that or you do not agree with  
5 that?

6           A. I do not agree with that.

7           Q. Okay. So your -- I'm going to look to page 4 of  
8 your report. You say -- so let me get your testimony.

9                   Your testimony is that all differences levels, all  
10 differences training between aircraft need to be trained; is  
11 that right?

12           A. Correct.

13           Q. All right. Are you aware that your report says,  
14 if no differences exist or if differences exist but do not  
15 affect knowledge, skills, ability or flight safety, then  
16 differences levels are not assigned, nor are they applicable  
17 to pilot training and qualification?

18           A. Okay. Yes, sir.

19           Q. So does that help you understand that not all  
20 differences need to be trained, sir?

21           A. Yes. If it's a minor item, that the coffee maker  
22 now has a new temperature limit on it, the crew would  
23 probably be made aware of that during a training. It would  
24 not be a very large-emphasis item.

25                   If that were the case, they would probably just

1 get a notice through the notification systems that the air  
2 carrier has and they would go on.

3 If it had anything to do with a crew member in the  
4 cockpit that would affect his decision-making or how he  
5 operated the aircraft, you would want to address that in  
6 differences training.

7 Q. Sir -- and my specific question is a little more  
8 simple, I hope -- it's that not all differences need  
9 training, right?

10 A. Correct.

11 Q. And there are also types of differences training  
12 that don't require simulator training, right?

13 That's level A, Level B, Level C, right?

14 A. Correct.

15 Q. Would you agree it's possible that the FAA AEG  
16 might not have required simulator training in 2016, 2017,  
17 even if they had the information about MCAS's expanded  
18 operational scope that Boeing Employee 1 and Boeing Employee  
19 2 withheld?

20 A. I would not agree with that.

21 Q. It's not possible under your --

22 A. I don't see how they could have done that.

23 Q. Okay. And that's so, even though you, yourself,  
24 cannot do that analysis, because you're not familiar with  
25 the formulas, and you're not familiar with MCAS, right?

1           A.    Correct.

2           Q.    It's also your opinion that, had the accident  
3           flight crews had simulator training, they would have been  
4           able to respond to the conditions on the accident flight,  
5           right?

6           A.    Correct.

7           Q.    But you don't dispute that, prior to the accident,  
8           flight crews on the 737 MAX were already trained in the  
9           simulator on runaway stabilizer procedures, right?

10          A.    Correct.

11          Q.    And as you sit here today, you can't say with any  
12           certainty what additional training would have been required  
13           to prevent the accidents, right?

14          A.    I believe that Level D or better would have been a  
15           contributing factor to preventing those accidents.

16          Q.    Can you say, for example, sir, how any additional  
17           training would have been different than the existing runaway  
18           stabilizer training?

19          A.    The pilots had gotten information through those  
20           ADs in a written form. They would read them. Had they had  
21           the opportunity to get into a simulator, they would have  
22           been able to see what the indications are. They would have  
23           had the indications on the screen.

24           They would have had indications perhaps on the  
25           visual. If they were at altitude, probably not so much as

1 at a lower altitude, they would have had visual cues.

2 They would have had experience touching and  
3 pulling back and experiencing the load factors. They would  
4 have heard the ratcheting, if you will, of the nose down.

5 They would have had the opportunity to apply  
6 memory items because this was a situation in which they did  
7 not have the luxury of pulling a checklist out and going to  
8 it.

9 It would have been a memory item-type thing in  
10 which they would -- in a simulator they would have had the  
11 opportunity to apply that knowledge.

12 As I mentioned this morning, a sim operator, if  
13 there was something that a pilot did wrong, out of sequence  
14 they can stop the simulator, and the pilot -- they can  
15 discuss it, they can reposition and go back and start over  
16 again and afford the pilot the opportunity to experience  
17 that, apply the knowledge.

18 And that way, he's learned it by reading it. He's  
19 learned it by probably looking at maybe some training aides  
20 in the classroom. He now has the simulator, which can  
21 reinforce his training through sight, sound, and feel.

22 Therefore, he's going to be a much better trained  
23 pilot, and he is going to have a reasonably good chance of  
24 actively or correctly responding to a given emergency within  
25 a given system.

1           Q.    Mr. Keyes, in your answer you reference the AD,  
2 the Airworthiness Directive, correct, that pilots read about  
3 the indications?

4           A.    Yeah.

5           Q.    So that all happened after the Lion Air crash,  
6 correct?

7           A.    I believe so, yes.

8           Q.    So back in 2016, isn't it possible that, even if  
9 the AEG had required simulator training on MCAS, it's  
10 possible the simulator training would not have been  
11 meaningfully different than the runaway stabilizer existing  
12 training, right?

13          A.    It would depend on how the individual operators  
14 have incorporated the information from the FSB into their  
15 training programs.

16          Q.    It would depend on each individual operator and  
17 how they did that, right?

18          A.    Especially the foreign operators.

19          Q.    And you are not an expert on how foreign operators  
20 incorporate recommendations into their training, right?

21          A.    No, I'm not.

22          Q.    So, Mr. Keyes -- and I'm wrapping up here -- but  
23 it's your opinion that Boeing Employee 1 and Boeing Employee  
24 2's omission of information about MCAS from the AEG and the  
25 Flight Standardization Board was an actual cause of the Lion

1 Air and Ethiopian Airlines crash, correct?

2 A. I believe it was a contributing factor.

3 Q. Well, sir, is it your opinion that it could have  
4 been a factor, or that it was the actual cause of the  
5 accident?

6 A. I believe --

7 MR. CASSELL: Objection, your Honor. That's --  
8 that's a confusing question. I'm not sure even I understand  
9 it.

10 Can you clarify it?

11 BY MR. HANEY:

12 Q. I believe I asked -- the question was, if we could  
13 clarify his opinion whether what I understand has been --  
14 was that with the omission of information about MCAS by  
15 Employee 1 and Employee 2 was an actual cause of the Lion  
16 Air and Ethiopian Airlines accidents; yes or no?

17 A. Yes.

18 Q. Okay. In order for that to be the case, sir, we  
19 would have to know that, if the Flight Standardization Board  
20 hadn't withheld information about MCAS's operational speed  
21 expansion, the FSB would have required differences training  
22 on MCAS at the time of the certification, right?

23 A. Correct.

24 Q. We would have had to know that the Flight  
25 Standardization Board would have required Level D simulator

1 training on MCAS and not a lower level, correct?

2 A. Correct.

3 Q. We would have to know that foreign regulators  
4 would have followed the FAA Flight Standardization Board,  
5 even though they're not required to, correct?

6 A. Correct.

7 Q. And we would have to know that, even if simulator  
8 training had been required by those foreign regulators, it  
9 would have included the accident scenarios, correct?

10 A. Correct.

11 Q. And we'd have to know that the required simulator  
12 training would have led the pilots to respond appropriately,  
13 correct?

14 A. Correct.

15 Q. Mr. Keyes, we've talked a lot about what your  
16 opinion says, but I want to briefly turn now to what is not  
17 in your opinion.

18 I don't see anywhere in your opinion an analysis  
19 of whether Boeing Employee 1 and Boeing Employee 2 could  
20 have reasonably foreseen that an omission of information  
21 regarding MCAS's expanded operational scope, the speed,  
22 could have caused the accident, right?

23 A. Can you restate that, please?

24 Q. There's nothing in your opinion about whether  
25 Boeing Employee 1 and Boeing Employee 2 could have

1 reasonably foreseen that an omission of information  
2 regarding MCAS's expanded operational scope, the low speed,  
3 could have caused the accident, right?

4 A. That did not enter in the analysis.

5 Q. Okay. No analysis.

6 And you didn't testify to that on direct  
7 examination, correct?

8 A. I did not. I had no knowledge at that time --

9 THE COURT: Hold on a second. Hold on a second.

10 Ask your next question.

11 MR. HANEY: Yeah.

12 BY MR. HANEY:

13 Q. Just confirming. You didn't testify to that on  
14 direct?

15 THE COURT: He did. He said no, and he was  
16 explaining.

17 BY MR. HANEY:

18 Q. Okay. All right. And my final question, you've  
19 never been qualified to act as an expert on the proximate  
20 cause of an aircraft crash; correct?

21 A. I have contributed to many crashes, but I have not  
22 been a party to the final determination.

23 Q. And no court has ever qualified you as an expert  
24 on the proximate cause of a plane crash?

25 A. Correct.

1 MR. HANEY: Thank you, sir.

2 THE COURT: Do you know how long you have? I have  
3 to break at 3:00 for a little bit.

4 MR. CASSELL: I think we're all planning to stay  
5 to find out what happened to the raccoon, your Honor.

6 THE COURT: In addition to that, I have, beyond  
7 the raccoons, something else that's going to take a little  
8 bit of time. So we will stay late tonight.

9 So anyway, you've got from now until 3:00, all of  
10 you do. If you want to end it before 3:00, let's get it  
11 done. If you can't, then you're going to have to come back  
12 at 4:00-ish.

13 MR. CASSELL: Right. Let me -- let me see how it  
14 goes. I think we discussed earlier that I might have a  
15 little bit of latitude now on redirect to discuss --

16 THE COURT: Yes.

17 REDIRECT EXAMINATION

18 BY MR. CASSELL:

19 Q. Sir, I think there's been some questions about  
20 your background that have been raised. It may be useful to  
21 go through some of those aspects of your background.

22 A. Okay.

23 Q. You mentioned -- oh, I assume you went to college.  
24 And what was your degree in?

25 A. My actual science was in aeronautical science, and

1 my MBA was business.

2 Q. And then do you have any professional certificates  
3 connected with aviation?

4 A. I hold an Airline Transport Pilot Certificate with  
5 five separate ratings, and I hold a flight instructor  
6 certificate.

7 Q. What are the type ratings that you have?

8 A. I have two Hawker type ratings, two King Air type  
9 ratings, and I have a Citation by under-type rating.

10 Q. And how much flight time do you have at this point  
11 in your career?

12 A. Somewhere --

13 Q. Approximately?

14 A. -- somewhere in excess of 8500 hours.

15 Q. And if I understand correctly, after graduating  
16 from college and so forth, you became a flight instructor, a  
17 charter pilot, and a corporate pilot?

18 A. Correct.

19 Q. Could you briefly describe what that involved?

20 MR. JACOBS: Your Honor, we'd stipulate to  
21 everything that's in the professional qualifications part of  
22 the expert report. If that's what we're going to go over,  
23 we will just stipulate to all that.

24 MR. CASSELL: All right.

25 THE COURT: It's up to Mr. Cassell.

1 BY MR. CASSELL:

2 Q. Maybe I should try to focus in just a little bit.

3 Was there anything in being a flight instructor, a  
4 charter pilot, or a corporate pilot that helped you in  
5 reaching some of the conclusions you've offered today?

6 A. Just general education and my experiences at -- I  
7 was a part of the certification team that certificated  
8 Simuflite as the first 142 training center.

9 It involved the approval of the curriculum,  
10 integrating simulators into the training programs, and  
11 approval of the simulator checklist.

12 Q. All right. I think I will get to that in a  
13 minute. I'm just looking at your CV. It indicates that  
14 from 1987 to 2000 you were an aviation safety inspector for  
15 the FAA?

16 A. Correct.

17 Q. Could you tell the Court a little bit about what  
18 being an aviation inspector for the FAA involved?

19 A. It involved certification of airman, certification  
20 of air carriers, air agencies, operators. It involved  
21 surveillance of those operators, plus agricultural  
22 operations, pilot schools, things of that nature.

23 We participated with the NTSB in accident  
24 investigation. If the NTSB made a determination that they  
25 do not have the resources to go out on an accident, the

1 accident would be delegated to the FAA.

2                   We certificated airman, and we provided  
3 surveillance. Just kind of generally all of that in the  
4 general aviation population, and in the air carrier world,  
5 which would, at that point, be FAR Part 135, which basically  
6 is your air taxi and commercial operators.

7                   Q. I wonder if you could go back. You've said that  
8 you were involved in aircraft accident investigations.

9                   Could you explain a little bit more the kinds of  
10 things you handled in connection with that?

11                  A. The one FAA inspector goes out on an accident. In  
12 many cases, the FAA inspector is the first one on the scene.

13                  It takes a while for the NTSB to get their people  
14 lined up and get them moved to the accident site. And as a  
15 consequence, the FAA is usually the first one there and  
16 assumes control of an accident site until the NTSB gets  
17 there.

18                  In some cases, the NTSB may give directions to the  
19 FAA on what they want done or not done until they get there,  
20 preserving the wreckage, looking for certain documents, make  
21 sure that you get the radar reports, things of that nature.

22                  Also, the FAA had certain responsibilities for  
23 things that we had to check and report on. We had a  
24 standard form that we had to fill out regarding those  
25 accidents.

1           Q.    And then, if I understand correctly, from 2000 to  
2 2002, you were a manager of the Training and Standardization  
3 Branch, FAA Flight Inspection program?

4           A.    That is correct.

5           Q.    Could you explain just briefly what that involved?

6           A.    The flight inspection branch for the FAA is the  
7 organization that has responsibility for approving and  
8 surveilling navigation aides for en-route navigation and  
9 approaches.

10           They do it all over the world. For the most part,  
11 we get invited -- we are invited by many countries to come  
12 in and do the certification and surveillance and  
13 recertification of their instrument approach systems, their  
14 en-route systems. We check the communications.

15           But also in the United States, at the time I was  
16 there, we had 32 aircraft. There was Challengers, Hawkers,  
17 Lear Jets, and King Airs.

18           We had 55 pilots and about the same number of  
19 technicians that were sitting in the back and did the real  
20 technical part of monitoring those.

21           My job was to -- also as a result of an accident  
22 in Front Royal, Virginia, the FAA and being certificated as  
23 a 135 operator and was required to operate in accordance  
24 with FAR 135.

25           And as such, they had to have specific training.

1       The pilots had to have specific training, periodic checking.  
2       My job was the manager of the training and qualification  
3       branch.

4               And it was my job and the people in my unit to  
5       conduct the appropriate tests, proficiency tests for the  
6       pilots, or certification, if they were a new pilot and had  
7       to get certificated in those aircraft.

8               Also, I was responsible for overseeing the  
9       contracts with Simuflite flight safety for recurrent  
10      training and qualification, not only as a pilot for that,  
11      but into the Flight Inspection Program qualifications.

12       Q.    And then from 2002 to 2005, you were the manager  
13      of Oklahoma FAA Flight Standards District Office.

14               Could you briefly tell us what that involved?

15       A.    My district was the State of Oklahoma. We had  
16      responsibility for all aviation activity within the State of  
17      Oklahoma, the certification of operators, surveillance of  
18      those operators, accident and incident specification,  
19      violation investigations, complaint investigations, accident  
20      investigations.

21       Q.    Let me stop you right there. That might be of  
22      significance.

23               Can you tell us what you did in connection with  
24      accident investigations and accident reports as a manager  
25      there?

1           A.    As the manager there, I ensured that the  
2   inspectors that went out on the accidents completed all the  
3   appropriate documentation that was required, and I reviewed  
4   all of the accident reports that the FAA inspectors produced  
5   before I forwarded those to the regional office.

6           Q.    Were you required to approve those accident  
7   reports?

8           A.    I had to sign off on each report.

9           Q.    And then from 2005 to 2011, I understand you were  
10   the manager of the FAA, National Flight Program Oversight  
11   Office.

12           Could you briefly tell us what that involved?

13           A.    The FAA was -- at the time, had four separate  
14   flight programs. They had a flight program which we  
15   referred to as Hangar 6 in Washington. And that was, for  
16   all practical purposes, kind of a VIP-type of arrangement.  
17   We had contracts with several government agencies. One in  
18   particular was the NTSB, Go Team. We would provide them  
19   with transportation as soon as possible.

20           We provided transportation for the air traffic  
21   controllers, the first ones to go back into New Orleans  
22   after Katrina. They operated in accordance with the 135  
23   certificate.

24           The Tech Center in Atlantic City, where they did a  
25   lot of experimentation, they also had a flight program. The

1 flight inspection, as I just described to you, and the  
2 flight standards, which conducts recurrent training of all  
3 its inspectors on a quarterly basis and has -- right now  
4 they have six King Airs down here in Fort Worth that they  
5 use for recurrent training.

6 Our office was responsible for overseeing those  
7 operations. Some of them, the Hangar 6 Flight Inspection  
8 and the flight standards also all carried, or held, 135  
9 certificates.

10 So we were responsible for oversight to ensure  
11 that the government, or the FAA did, in fact, comply with  
12 all the federal regulations for a 135, but also office and  
13 management and budget had several documents that they put  
14 out that required government agencies to operate and report  
15 in a certain way.

16 And being a subdivision of the DOT, DOT had an  
17 order -- I believe it was 8060.5C, which directed operators  
18 of aircraft within the DOT on how they would operate and how  
19 they would report.

20 And our office was responsible for oversight to  
21 ensure that everybody met all of the requirements and  
22 directives of the government.

23 And also, we were the repository, or we collected  
24 all of the reporting information that got forwarded to GSA  
25 and was provided to and shared with Congress.

1           Q. I see that also you had an additional set of  
2 duties from 2001 to 2011 as the chairman of the Interagency  
3 Committee for Aviation Policy Safety Standards and Training  
4 Subcommittee.

5           Could you explain briefly what that involved?

6           A. Okay. I was not the chairman. I was the FAA  
7 representative --

8           Q. Oh, I'm sorry. Thank you.

9           A. -- to ICAP. ICAP was set up at the direction of  
10 O&B to GSA to set up a system or a forum -- or platform,  
11 whereby all government agencies that operated aircraft would  
12 share best practices. They would conduct safety audits,  
13 things of that nature.

14           I became the chairman of the Safety Standards and  
15 Training Subcommittee, and our job was to go out after an  
16 accident with an operator of one of the agencies, and we  
17 would take a look at the structure and the organization,  
18 their safety management system, to see if there was any  
19 holes in that or fault with the management or oversight of  
20 that that might have contributed to an accident.

21           And we did the State Department. We did NASA. We  
22 did the Department of Justice. We did Border Patrol. We  
23 did Customs. Just about everybody.

24           At one point -- it did not have to be an accident.  
25 They could ask us to come in and do a safety audit for their

1 own edification.

2                   In a couple of instances, there was a new director  
3 of the program, we got a letter from one that says, "I don't  
4 know what I have here. Please come in, do an audit and tell  
5 me what I've got." And we did that. So I was chairman of  
6 that for, I guess, seven or eight years, nine years.

7                   Q. All right. And then, it sounds like you retired  
8 from the FAA around 2011?

9                   A. I did.

10                  Q. Twenty-four years with the FAA?

11                  A. Correct.

12                  Q. But did you continue to interact with the FAA for  
13 the, what, next 11 years after that?

14                  A. Yes.

15                  Q. And what have you done with the FAA to interact  
16 with them --

17                  A. I'm a contract instructor for the FAA at their  
18 academy in Oklahoma City.

19                  Q. And what do you teach there at the academy?

20                  A. I teach various subjects. Currently, I am  
21 teaching airman certification and air carrier certification.

22                  Q. And does any of that instruction involve training  
23 programs?

24                  A. It does.

25                  Q. Could you tell us a little bit about what the FAA

1 has you do to instruct about training programs?

2           A. I'm instructing primarily new inspectors on the --  
3 we kind of take them through the approval process for an air  
4 carrier's training program and how it's constructed, the  
5 different phases, and the gates that they have to pass  
6 before they move on to the next phase of the certification.

7           And as part of that, when we talk about the  
8 curriculum, we talk to them about the integration of  
9 differences training. We take them through the AEG  
10 organization, what they do, how they do it.

11           We show them a report. Normally, we pull up  
12 something like the King Air or the Hawker and show them the  
13 differences and how the operator will then come up with the  
14 operator's minimum requirement for differences training and  
15 how that the -- then, as the inspector, how they need to  
16 look at that to ensure that that information from the AEG  
17 FSB is incorporated into the training.

18           Q. Now, where do you get your information to teach  
19 the students that you are instructing about these  
20 differences?

21           A. The FAA provides me with a curriculum.

22           Q. And I take it they have confidence in your ability  
23 to teach those subjects to the students there?

24           A. Apparently, because they have periodic reviews  
25 where they sit in on my training and grade me.

1           Q. Now, is part of the curriculum there how to create  
2 the training program for different types of aircraft and  
3 things like -- of that nature?

4           A. Basically, the training structure is similar.  
5 Whether you're flying Cessna 210s or whether you're flying  
6 Triple 7s or anything in between the structure is basically  
7 the same.

8           Q. And I take it, then, you have students who go on  
9 to become FAA inspectors when they finish taking --

10          A. When they finish all of the required training,  
11 they become inspectors.

12          Q. Could they go and inspect, for example, a 737 MAX?

13          A. They could go in and inspect a 737 MAX if they  
14 were looking at the structure. Unless they were qualified  
15 in a 737, they would probably have difficulty trying to  
16 determine whether all of the information that would have  
17 been required would be incorporated in the curriculum.

18          The FAA has kind of two parallels, one is general  
19 aviation and one is air carrier. The air carrier inspectors  
20 would have a lot more information on that. The air carrier  
21 inspector that would do that would be the ones that are type  
22 graded in the 737 or have experience with transport category  
23 aircraft.

24          Q. All right. Well, thank you for that information  
25 about your background.

1                   Now, I want to turn to a couple of questions that  
2 came up about your expert opinion. I think you said you  
3 were not an expert in the details of the software involving  
4 MCAS; is that correct?

5                   A.    Correct.

6                   Q.    But do you believe that you are in a position to  
7 assess the consequences that come from MCAS malfunction or  
8 uncommanded MCAS activation?

9                   A.    I believe I'm qualified to make an assessment on a  
10 lack of information and its effect on training.

11                  Q.    And let's focus, then, on that effect on training.

12                  Could you explain why you have an ability to  
13 assess how the uncommanded MCAS activation or something  
14 along those lines would have implications for training  
15 programs or could have been prevented by training programs?

16                  A.    Basically, it would go back to my 50 years of  
17 experience in aviation, being exposed to different training  
18 programs at different companies where I was a pilot, being  
19 in charge of training, as I was with the oversight -- or the  
20 flight program, looking at training programs to approve  
21 them.

22                  My experience with certificating curriculums and  
23 simulators for Simuflite have kind of all added up. So it's  
24 hard to say just one particular thing. It's just a  
25 culmination of my experiences.

1           Q. Now, there was a lot of question about a phrase  
2 that came up in your report. Something about a "complete  
3 dataset" regarding MCAS.

4           Could you explain what you meant when you used  
5 that phrase, "a complete dataset"?

6           What kind of information were you referring to?

7           A. What I was referring to was all the appropriate  
8 and available data.

9           Q. All right. And I know there was some questions  
10 about what's in the Statement of Facts here.

11           Were you familiar with paragraph 14 in the  
12 Statement of Facts that says, "Boeing Employee 1 and Boeing  
13 Employee 2 understood that the FAA AEG relied on them" --  
14 that is the two Boeing employees -- "as members of Boeing  
15 737 MAX technical team, to identify and provide to the FAA  
16 AEG all information that was relevant to the FAA AEG in  
17 connection with the FAA AEG's publication of the 737 MAX FSB  
18 report, including information that could impact the FAA  
19 AEG's differences training determination."

20           I know that was long there, but were you familiar  
21 with that?

22           A. Yes.

23           Q. So when we're talking about a complete dataset not  
24 getting to the FAA AEG, what is your understanding of whose  
25 job it was to get that complete dataset?

1           A.    My understanding is that the manufacturer would be  
2 the one that would supply that information to the FAA AEG.

3           Q.    And we've been talking to you about a complete  
4 dataset. That makes it sound like there's a lot of  
5 information and so forth that might be at issue.

6           Is there one piece of information that would have  
7 been critically important to the FAA AEG when they were  
8 trying to come up with the training program in connection --  
9 in connection with MCAS?

10          A.    I believe, had they known of the expanded  
11 parameters of MCAS, that it would have had quite an impact  
12 on how they would react and how they would judge it.

13          Q.    And I think everyone -- it's your understanding  
14 that everybody agrees that Mr. Fortner did have access to  
15 that information?

16          A.    I believe so, yes.

17          Q.    There was also some questions I think from the  
18 Boeing attorneys about how, well, look, after the Lion Air  
19 crash, there were these documents that went out. So people  
20 knew more about MCAS at that point in time.

21           And, by golly, in the next couple of months, the  
22 FAA didn't go to flight simulator training and so forth. I  
23 guess it would be about a four-and-a-half month period of  
24 time.

25           Could you give us some sense of how long it would

1 take the FAA to decide to go from, let's say, a Level B  
2 determination, to a Level D determination in the ordinary  
3 course of business?

4 A. I would only be hazarding a guess, and I wouldn't  
5 want to do that.

6 Q. All right. You know that in the event -- how long  
7 did it take the FAA, ultimately, to go with the Level D  
8 flight simulator training for the 737 MAX?

9 A. I don't remember the time frame that was involved  
10 between the accidents and the actual date -- I don't recall  
11 a date on that particular document where they finally said,  
12 you know, "We got to have sim training."

13 MR. CASSELL: If I can just confer with counsel?

14 BY MR. CASSELL:

15 Q. It wouldn't have been a four-and-a-half month  
16 process, though. It would have been longer than that; is  
17 that a fair statement? In general?

18 A. In a critical situation, they may have been able  
19 to move quicker.

20 Q. Right.

21 Well, so for example, here's something that I  
22 think we talked about in direct examination that's relevant  
23 to this.

24 It was on January 7th, 2020, that Boeing announced  
25 that they thought simulator training was needed for the 737

1 MAX. Do you recall that announcement from Boeing?

2 A. Yes, I do.

3 Q. And if we go back to the Ethiopian Airline crash,  
4 I believe that was in March of 2019.

5 A. Yeah.

6 Q. So the Boeing process to evaluate all this took,  
7 if my math is correct, more than nine months; is that a fair  
8 statement?

9 A. Sounds right.

10 Q. And Boeing, I take it, has a lot of resources  
11 available to it if it wanted to rapidly come forward with a  
12 new training program?

13 A. I believe they do.

14 Q. I also now want to direct your attention to  
15 families' Exhibit -- well, let's see. Yeah, if we could  
16 look for a moment at families' Exhibit 7. I don't know if  
17 that document is available.

18 It's a CANIC, Continued Airworthiness Notification  
19 on March 11, 2019.

20 A. Yes, a two-page document. Number 7.

21 Q. Yeah.

22 THE COURT: Okay. We need to take a break.

23 MR. CASSELL: Right. Thank you, your Honor.

24 (The proceedings adjourned at 3:00 p.m.)

25 (The proceedings reconvened 4:10 p.m.)

1                   MR. CASSELL: All right. Thank you. And thank  
2 you, your Honor. We estimate we have about just 10 more  
3 minutes of cleanup here, and then we will be finished.

4 BY MR. CASSELL:

5                   Q. There were a lot of questions, Mr. Keyes, about  
6 what happened after the Indonesian crash, and then before  
7 the Ethiopian crash, and whether the FAA was jumping in to  
8 do anything during that time.

9                   Did the FAA ultimately order flight simulator  
10 training for the 737 MAX?

11                  A. Yes, they did.

12                  Q. And so, during that intervening four months -- I'm  
13 wondering if you would take a look at Exhibit 7, which has  
14 previously been entered into evidence. This is the CANIC,  
15 or Continued Airworthiness Notification.

16                  I notice this was on March 11, 2019. And if I've  
17 done my math correctly, that is one day after the Ethiopian  
18 crash, I believe?

19                  A. Yes.

20                  Q. All right. Now, can you take a look at this  
21 document and see if it tells us anything about what the FAA  
22 has been doing in the interim between the two crashes here?

23                  A. Primarily, they indicate that ongoing oversight  
24 activities by the FAA would include the Boeing's completion  
25 of the flight control system enhancements, which provided

1 reduced reliance on procedures associated with primary pilot  
2 memory items.

3 The FAA anticipates mandating these design changes  
4 by AD no later than April 2019. The design changes would  
5 include MCAS activation enhancements, MCAS AOA signal  
6 enhancements, MCAS maximum command limits.

7 Q. Now, let me just jump right in.

8 Is there anything in there about training updates  
9 that are anticipated in connection with the Boeing 737 MAX?

10 A. It just says that, "Boeing has proposed Level A  
11 training impacts."

12 Q. And if I can direct your attention to the bottom  
13 of page 1 there. About three lines from the bottom there is  
14 a reference to, "Boeing's plans to update training  
15 requirements."

16 A. Yes.

17 Q. Do you see that?

18 And what is that a reference to?

19 A. That would be obviously to providing more training  
20 and more information to the flight crews through the flight  
21 crew manuals to go along with the MCAS changes.

22 Q. So as of March 11, 2019, Boeing was trying to  
23 update its flight manuals and training requirement  
24 recommendations? Is that the gist of this document?

25 A. That's the way I would read that.

1           Q.    But, sadly, I take it, those updates were not in  
2 effect on March 10, 2019?

3           A.    Correct.

4           Q.    You were asked a question about whether Boeing  
5 intended to cause the planes to crash. I just wanted to  
6 clarify what you said on that.

7           I take it that from what you have read in the  
8 Statement of Facts, Boeing, through its representatives, was  
9 intentionally lying to the FAA about safety issues?

10          A.    I believe so.

11          Q.    And were those safety issues potentially  
12 life-or-death issues?

13          A.    In light of the information, yes.

14          Q.    You were asked about some questions about whether  
15 you had ever worked for the AEG. Is it necessary for you to  
16 have actually worked in that agency for you to offer expert  
17 opinions about how it operates?

18          A.    I don't believe so.

19          Q.    How about, is it necessary for you to work in the  
20 FSB to offer expert opinions in how they operate?

21          A.    I don't believe so.

22          Q.    Do you have specialized knowledge about the kinds  
23 of subjects that we have been talking about today?

24          A.    I do.

25          Q.    You were asked a lot of questions about this word

1 "formula," about whether -- I'm sorry -- about whether the  
2 FAA had some sort of formula for deciding whether to do  
3 Level B training or Level D training.

4 I'm wondering if you could unpack what you meant  
5 by the word "formula" when you were talking about that?

6 A. Basically, internal documentation that provided  
7 guidance to them on how to determine what they would take  
8 into consideration when determining the different levels of  
9 training that would be required. That's what I would have  
10 been referring to.

11 Q. And you have an understanding that, using their  
12 internal documentation or whatever we call it, they  
13 ultimately decided that Level B training was appropriate  
14 here?

15 A. Yes.

16 Q. There were a couple of questions about some  
17 documents that were issued between the two crashes. I  
18 believe they were the FCOM and the Emergency AD, the  
19 Emergency Airworthiness Directive. Also, I think a MOM --  
20 what is it, a memo of -- memo of some sort of -- Memo To  
21 Operators. Thank you. There we go -- were those  
22 significant documents, in your mind, that laid out very  
23 clearly what was going on with the MCAS system?

24 A. As I read it, I don't think it was all that clear.  
25 I think they indicated that they were working through the

1 issues and they had not come up with anything definitive at  
2 that point.

3 Q. Now, the attorney for Boeing asked you some  
4 questions that involved the word "conceivable." I think he  
5 said it was "conceivable" that the FAA might have gone with  
6 Level B, or it was "conceivable" that they might have gone  
7 with Level D, if they had gotten all the information about  
8 MCAS.

9 As between those two options, do you have an  
10 opinion, to a reasonable degree of aeronautical certainty,  
11 as to which was more probable?

12 A. I would believe it would be more probable that,  
13 had they had the full information, that they would have gone  
14 with Level D.

15 Q. And I think at one point you even said it wouldn't  
16 be possible for the FAA to ignore simulator training. I was  
17 wondering if you could explain why, in your mind, it  
18 wouldn't have really even been possible for the FAA not to  
19 have simulator training?

20 A. Once again, when they started getting into their  
21 own internal documentation guidelines on how to go about  
22 making a determination of what level of training, the  
23 definition themselves would have lent them to their decision  
24 to go with the Level D.

25 Q. Now, you were asked some questions about how much

1 expertise you have regarding whether foreign operators  
2 incorporate FAA guidance into their training programs.

3 I just want to clarify. Do you have actual  
4 information about what the training program looked like for  
5 Lion Air, Flight 610 pilots?

6 A. No, I do not.

7 Q. Have you seen a report, though, that summarizes  
8 what the training was for Lion Air, 610?

9 A. Yes, I have.

10 Q. And what does that report generally indicate in  
11 that regard?

12 A. That they had the training in accordance with  
13 Level B.

14 Q. And would it be the same thing for the Ethiopian  
15 flight 302?

16 A. It would.

17 Q. Now, you were asked some questions at the end  
18 about foreseeability, what Boeing could foresee.

19 Did we ask you to undertake a review of all the  
20 Boeing documentation to see what sort of things they could  
21 and could not foresee?

22 A. I was given all of the documents, pertinent  
23 documents, asked to review those documents, and make a --

24 Q. Let me just jump in this way. We didn't ask you  
25 to give an opinion on what Boeing foresaw?

1           A.    No, you did not.

2           Q.    In fact, if we were going to talk about documents  
3    that you reviewed, I think we mentioned this on direct  
4    examination, but if we look at page 25 of the House report,  
5    there was a reference there from 2015 to 2018, Boeing's own  
6    test pilots had suffered potentially catastrophic  
7    consequences in the way they were evaluating things,  
8    information that was included in at least six separate  
9    internal Boeing coordination sheets.

10           Would that potentially be the kind of information  
11    that you would have looked at if we asked you to give an  
12    opinion on foreseeability?

13           A.    Yes.

14           MR. CASSELL: No further questions.

15           MR. JACOBS: No cross, your Honor. Thank you.

16           MR. HANEY: Your Honor, no cross.

17           We would re-urge the Court to consider a Daubert  
18    challenge to this expert and striking this witness's  
19    testimony.

20           THE COURT: I understand.

21           MR. HANEY: Thank you, your Honor.

22           THE COURT: Hey, can you remind me what Level C  
23    training is? I know what D and B is. I cannot recall what  
24    C is.

25           THE WITNESS: Basically, Level C was training

1 where they would use fixed pictures on cardboard sheets or  
2 poster board where they could sit, and there was no  
3 functionality to it, but they could sit and point to a dial  
4 or an instrument or a control item, and say, this is next,  
5 this is next, this is what I do there. And it's kind of  
6 called the procedures training.

7 THE COURT: Okay. Yeah. Good. Okay. Thank you.

8 You may step down.

9 Okay. So we will start back up, then, on whatever  
10 that date is at the end of August. I don't want to say it  
11 because I don't want to throw it off, but it's in the  
12 papers, and it's on my calendar.

13 So is there anything else we should take up today?

14 MS. BRAMMEIER: Yes, your Honor. Just briefly.  
15 Tracy Brammeier. For the next dates, there are several  
16 families who have reached --

17 THE COURT: Come on over here so I can hear you  
18 better.

19 MS. BRAMMEIER: Yes, your Honor. Tracy Brammeier.  
20 I have been liaising with the various family members of the  
21 victims of the crashes. Several family members have reached  
22 out to ask me if it's possible to open a conference line or  
23 some other method?

24 THE COURT: No.

25 MS. BRAMMEIER: Okay. Thank you. I figured I

1 would make the request.

2 MR. CASSELL: Nothing further from the families,  
3 your Honor.

4 MR. JACOBS: Just ask the Court how you would like  
5 to proceed with respect to our Daubert challenge, whether we  
6 should make the record about that as to this particular  
7 witness or save it for the end?

8 THE COURT: Why don't you brief it as opposed to  
9 making it now. That way I have it on paper.

10 MR. JACOBS: Understood, your Honor.

11 THE COURT: I'm just taking in his opinions as  
12 presented by Mr. Cassell. And as I weigh his opinions, I'm  
13 also obviously considering the cross-examination questions  
14 that you have asked, but if you want to apply those  
15 factually, what he has relied on, what his background and  
16 qualifications are, which I've read the -- paragraph 1 here  
17 before I got here -- and then apply it to what he is opining  
18 and point that out in a written pleading, that's fine.

19 That will give Mr. Cassell a chance -- and you, as  
20 well -- that will give Mr. Cassell a chance to respond. I  
21 will probably wrap it all up in one order after I get  
22 everything presented to me.

23 MR. JACOBS: Thank you, your Honor. And one other  
24 question.

25 THE COURT: Yeah.

1                   MR. JACOBS: I appreciate that the Court's  
2 schedule is pretty packed, from what I can hear. Just for  
3 planning purposes, I know we're starting at, I believe,  
4 9:00 the 26th, and we have two witnesses scheduled that day.

5                   THE COURT: Uh-huh.

6                   MR. JACOBS: Does the Court anticipate the 26th as  
7 being one day or do you think it could spill over to Monday?

8                   MR. CASSELL: I think it's going to be a long day,  
9 your Honor. We're calling our pilot who has been in the  
10 simulator for the 737 and so forth.

11                  And then we will also have the director of  
12 Catastrophic Risk Management Center from U.C. Berkeley. I  
13 would anticipate -- with no offense to Mr. Keyes -- they  
14 speak a little more quickly than Mr. Keyes, but it is going  
15 to be -- it's going to be a busy day.

16                  THE COURT: I think his question is, is it one day  
17 or is it going to be multiple days?

18                  MR. CASSELL: Well, we will certainly try to do it  
19 in one day. We are going to call Ms. Norton first. I don't  
20 know if your Honor would start at 8 a.m. on that day?

21                  THE COURT: I'm afraid to weigh in on the day.  
22 What day of the week is this?

23                  MR. CASSELL: It's Friday, August 26th, is what  
24 we're looking at.

25                  THE COURT: So you want to start at 8:00?

1                   MR. CASSELL: Yes, please.

2                   THE COURT: What do you say to that?

3                   MR. JACOBS: We have no objections to that, your  
4 Honor. I just want to know if we should try to keep our  
5 schedules open for Monday and stay through the weekend,  
6 rather than traveling? Whatever information we could get on  
7 that would be very much appreciated.

8                   THE COURT: I don't know.

9                   What is your take on that?

10                  MR. CASSELL: So I think that Ms. Norton is going  
11 to be of comparable length to Mr. Keyes, because she's going  
12 to be coming at the same issues, but from the pilot's  
13 perspective, rather than an FAA official's perspective.

14                  So I do -- I mean, it is interesting that  
15 Mr. Keyes, as you know, does not speak quite as rapidly as  
16 some of our other witnesses. I know Ms. Norton is a fast  
17 talker, so I think that may produce a somewhat  
18 abbreviated --

19                  THE COURT: Well, do you think he should stay  
20 until Monday, is really the bottom line?

21                  MR. CASSELL: I mean, I will guesstimate that we  
22 could put on Ms. Norton in two and a half hours, and then we  
23 can put on Mr. -- Dr. Storesund in an hour. That's my  
24 prediction for my direct examination.

25                  THE COURT: Why don't you just stay in touch with

1       Mr. Cassell between now and then, in case something changes,  
2       but we probably ought to start it at 8:30. Just to give me  
3       from 8:00 to 8:30 to fit in any other thing that comes up  
4       like has happened today.

5               I had to fit in a criminal case this morning,  
6       because they couldn't do it yesterday. And then I had to  
7       fit in this civil case for obvious reasons. So give me  
8       that -- give me that buffer.

9               MR. JACOBS: Thank you.

10               Should the parties also be prepared for argument  
11       that day? Is that what the Court would like?

12               THE COURT: I will give you some time to argue if  
13       you want, yes.

14               MR. JACOBS: Thank you, your Honor.

15               THE COURT: But I probably won't be ruling that  
16       day.

17               MR. JACOBS: Of course. Of course. Thank you,  
18       your Honor. Nothing further from the government, your  
19       Honor. Thank you.

20               MR. HATCH: Thank you, your Honor. Nothing  
21       further from Boeing.

22               THE COURT: Okay. Thank you. Well, you all have  
23       a very nice weekend.

24               (The proceedings adjourned at 4:30 p.m.)

25

REPORTER'S CERTIFICATE

I, ZOIE WILLIAMS, RMR, RDR, FCRR, certify that the foregoing is a true and correct transcript from the record of proceedings in the foregoing entitled matter to the best of my ability to hear.

Further, due to the COVID-19 pandemic, some participants are wearing masks, and/or appeared via videoconferencing, so proceedings were transcribed to the best of my ability.

I further certify that the transcript fees format comply with those prescribed by the Court and the Judicial Conference of the United States.

Signed this 7th day of August, 2022.

\_\_\_\_/s/ Zoie Williams  
Zoie Williams, RMR, RDR, FCRR  
Official Court Reporter  
Northern District of Texas  
Fort Worth Division

Business Address: 501 W. 10th Street, Room 532  
Fort Worth, Texas 76102  
zwilliams.rmr@gmail.com  
817.850.6630

<p><b>MR. CASSELL: [83]</b> 4/7          4/13 4/19 5/15 5/19 6/15          12/25 13/8 14/12 14/18          14/23 15/2 15/9 21/9 21/13          21/15 52/25 57/19 57/25          58/2 58/8 63/22 65/22          68/16 72/3 73/20 74/6          79/20 80/7 80/20 82/1          82/18 84/5 84/9 88/24          90/18 90/24 91/2 91/6          91/15 92/24 93/4 93/7          93/13 96/11 102/1 107/24          110/1 115/14 115/23 116/4          116/6 116/9 116/24 119/20          119/22 122/3 126/22          130/19 132/7 135/6 139/1          139/8 142/6 150/10 150/18          156/4 158/24 168/7 171/4          171/13 172/24 186/13          187/23 188/1 194/14 196/2          197/8 197/18 197/23 198/1          198/10 198/21  <b>MR. HANEY: [19]</b> 4/24          14/17 15/13 58/1 68/19          73/23 82/14 90/23 93/9          93/12 150/17 151/4 151/11          151/13 156/5 170/11 171/1          194/16 194/21  <b>MR. HATCH: [8]</b> 4/22          5/3 8/20 10/8 11/22 12/24          150/20 199/20  <b>MR. HILTON: [1]</b> 4/11  <b>MR. JACOBS: [51]</b> 5/7          7/4 8/17 8/19 14/16 15/12          57/23 68/18 73/22 82/13          90/22 106/24 108/2 110/17          115/17 116/5 120/3 120/5          122/9 122/17 127/9 128/1          128/14 128/22 129/2 129/8          129/12 129/14 129/16          129/24 130/1 130/15 138/3</p>	<p>138/5 138/8 138/14 138/17          139/22 145/5 145/13          172/20 194/15 196/4          196/10 196/23 197/1 197/6          198/3 199/9 199/14 199/17  <b>MR. MEACHAM: [1]</b> 7/1  <b>MR. SANTOS: [1]</b> 5/1  <b>MS. APPLEBAUM: [1]</b>          4/10  <b>MS. BAUR: [1]</b> 5/5  <b>MS. BRAMMEIER: [3]</b>          195/14 195/19 195/25  <b>MS. BRAUMMEIER: [1]</b>          4/9  <b>THE COURT: [115]</b> 4/4          4/8 4/12 4/17 4/20 5/4          5/6 5/10 5/13 5/18 6/13          6/24 7/2 8/15 8/18 10/3          10/20 12/20 13/2 13/6          13/12 14/15 14/19 14/24          15/8 15/11 15/14 21/12          21/14 21/16 57/21 58/6          68/20 74/3 82/15 82/21          84/8 91/1 91/4 93/2 93/6          93/11 93/15 102/3 106/23          110/19 116/1 116/8 117/4          119/21 120/1 120/4 120/6          120/9 120/12 122/8 122/16          127/5 127/14 128/2 128/15          128/25 129/7 129/11          129/13 129/15 129/17          129/25 130/14 131/11          132/14 132/18 135/14 138/1          138/4 138/6 138/13 138/15          139/7 139/13 139/16          139/21 140/1 142/16 145/10          150/15 150/24 151/7 151/12          170/9 170/15 171/2 171/6          171/16 172/25 187/22          194/20 194/22 195/7          195/17 195/24 196/8          196/11 196/25 197/5</p>	<p>197/16 197/21 197/25          198/2 198/8 198/19 198/25          199/12 199/15 199/22  <b>THE WITNESS: [13]</b>          5/12 13/5 102/4 107/1          110/24 120/8 120/11 132/16          133/2 135/17 139/15          142/19 194/25            '  <b>'Boeing [1]</b> 77/5  <b>'I [1]</b> 78/19  <b>'objectionable [1]</b> 112/20            /  <b>/s [1]</b> 200/17    <b>O</b>  <b>05 [1]</b> 4/5    <b>1</b>  <b>1,000 [2]</b> 44/21 44/24  <b>1.17.8 [1]</b> 156/3  <b>10 [17]</b> 3/25 9/12 26/11          27/3 44/25 66/7 74/16          84/7 86/19 91/20 91/21          92/25 93/3 93/10 107/16          188/2 190/2  <b>100 [1]</b> 2/24  <b>10017 [1]</b> 2/8  <b>10th [3]</b> 66/23 160/17          200/20  <b>11 [4]</b> 180/13 187/19          188/16 189/22  <b>1100 [1]</b> 1/18  <b>11th [1]</b> 89/12  <b>12 [2]</b> 23/3 73/10  <b>120 [1]</b> 2/11  <b>12:44 a.m [1]</b> 116/10  <b>13 [7]</b> 3/17 19/1 54/7 55/7          55/8 94/4 133/8  <b>1301 [1]</b> 2/21  <b>131 [1]</b> 69/2  <b>132 [4]</b> 69/18 70/7 140/25</p>
--	---	---

<b>1</b>	<b>2017 [7]</b> 77/2 77/14 78/3 78/16 80/18 157/9 164/16 <b>2018 [10]</b> 18/22 52/24 53/7 62/16 74/15 84/14 160/6 160/17 162/14 194/5 <b>2019 [10]</b> 66/23 86/19 89/12 159/7 187/4 187/19 188/16 189/4 189/22 190/2 <b>202.239.5921 [1]</b> 2/22 <b>202.616.4994 [1]</b> 1/22 <b>2020 [2]</b> 88/3 186/24 <b>2021 [1]</b> 91/21 <b>2022 [4]</b> 1/7 4/2 159/1 200/15 <b>207 [2]</b> 61/5 61/21 <b>21 [1]</b> 21/24 <b>210s [1]</b> 182/5 <b>212.972.9432 [1]</b> 2/9 <b>215 [1]</b> 140/16 <b>2150.3C [1]</b> 22/22 <b>23 [1]</b> 73/9 <b>23219 [1]</b> 2/18 <b>24 [4]</b> 19/9 19/11 20/23 36/13 <b>25 [3]</b> 22/1 74/14 194/4 <b>26 [3]</b> 22/3 77/1 77/13 <b>26th [3]</b> 197/4 197/6 197/23 <b>27 [1]</b> 77/13 <b>28 [1]</b> 53/6 <b>288 [1]</b> 159/20 <b>28th [1]</b> 2/8 <b>290 [1]</b> 160/22 <b>29th [5]</b> 18/22 52/24 53/7 62/16 84/14	<b>36th [1]</b> 2/11 <b>383 [1]</b> 2/5 <b>3:00 [3]</b> 171/9 171/10 187/24 <b>3:00 for [1]</b> 171/3
<b>2</b>		<b>4</b>
<b>2's [3]</b> 127/13 151/5 167/24 <b>2000 [2]</b> 173/14 175/1 <b>20004 [1]</b> 2/21 <b>20005 [1]</b> 1/21 <b>2001 [1]</b> 179/2 <b>2002 [2]</b> 175/2 176/12 <b>2005 [2]</b> 176/12 177/9 <b>2011 [3]</b> 177/9 179/2 180/8 <b>2012 [1]</b> 107/15 <b>2015 [2]</b> 74/15 194/5 <b>2016 [6]</b> 157/9 157/25 158/4 161/21 164/16 167/8	<b>43 [1]</b> 33/20 <b>46 [3]</b> 35/10 35/13 41/23 <b>469.914.7610 [1]</b> 2/14 <b>480.375.8992 [1]</b> 2/25 <b>485 [1]</b> 2/8 <b>49 [3]</b> 20/18 21/1 158/15 <b>4:00-ish [1]</b> 171/12 <b>4:10 [1]</b> 187/25 <b>4:21-cr-00005-O-1 [1]</b> 1/5 <b>4:30 p.m [1]</b> 199/24	
<b>3</b>		<b>5</b>
		<b>50 [3]</b> 26/3 145/19 183/16 <b>500 [1]</b> 2/13 <b>501 [1]</b> 200/20 <b>51 [10]</b> 126/23 127/4 127/10 127/23 128/13 128/16 128/24 130/20 131/9 132/13 <b>532 [1]</b> 200/20 <b>55 [1]</b> 175/18 <b>59 [2]</b> 90/4 90/8 <b>5th [1]</b> 80/18
		<b>6</b>
		<b>60 [2]</b> 22/4 22/7 <b>600,000 [3]</b> 17/20 17/23 73/11 <b>60602 [1]</b> 2/11 <b>610 [7]</b> 18/22 53/7 59/5 84/14 88/16 193/5 193/8 <b>65 [1]</b> 9/11 <b>6:20 a.m [1]</b> 84/13

**7**

737 [112] 15/24 16/5  
16/13 16/20 17/10 17/15  
17/19 18/8 18/21 19/21  
23/9 23/10 24/7 25/19  
27/1 32/13 32/14 32/18  
33/24 35/15 35/17 36/18  
39/21 39/22 41/11 43/1  
43/3 46/9 46/12 46/25  
47/12 47/16 47/16 48/3  
48/4 49/13 51/15 53/7  
53/20 58/20 60/19 63/4  
63/11 64/5 66/24 69/19  
69/20 70/9 72/11 72/21  
75/13 75/17 75/17 76/12  
77/2 77/3 77/4 77/16  
77/20 79/8 79/10 80/15  
84/15 88/5 88/14 88/20  
94/16 97/8 97/15 97/19  
97/22 97/25 98/8 98/11  
99/3 106/12 108/21 112/4  
112/22 115/19 122/20  
125/17 125/19 131/1 136/8  
139/19 145/21 145/22  
145/24 146/2 146/6 146/6  
146/8 146/22 147/1 153/10  
154/5 154/18 159/22  
160/10 165/8 182/12  
182/13 182/15 182/22  
184/15 184/17 186/8  
186/25 188/10 189/9  
197/10  
737-8 [2] 156/9 156/18  
75 percent [1] 48/14  
75202 [1] 2/14  
75249 [1] 1/18  
76102 [2] 2/24 200/20  
7s [1] 182/6  
7th [3] 88/3 186/24  
200/15

**8**

8 a.m [1] 197/20  
80 [1] 83/13  
80 percent [1] 83/6  
800 [3] 2/18 44/21 44/23  
801.585.5202 [1] 2/6  
804.698.2194 [1] 2/19  
8060.5C [1] 178/17  
817.850.6630 [1] 200/21  
84112 [1] 2/5  
8500 [1] 172/14  
86 [1] 111/23  
8900.1 [1] 49/22  
8:00 [2] 197/25 199/3  
8:30 [1] 199/2  
8:30 a.m [1] 86/16  
8:30 to [1] 199/3  
8:39 a.m [1] 86/17

**9****90**

90 [1] 55/22  
90 percent [1] 48/13  
900 [1] 2/13  
95 percent [1] 48/13  
9:00 [1] 1/9  
9:00 the [1] 197/4  
9:33 p.m [1] 80/18

**A**

a.m [6] 1/9 84/13 86/16  
86/17 116/10 197/20  
AAIB [4] 69/3 69/18 70/8  
70/23  
Ababa [1] 86/20  
abbreviated [1] 198/18  
abeyance [1] 110/12  
abilities [2] 79/10 112/7  
ability [9] 92/8 92/19  
102/17 112/14 163/15  
181/22 183/12 200/7  
200/11  
able [16] 7/7 11/20 24/17  
32/20 56/9 61/24 62/5

67/9 86/10 87/22 98/20  
142/4 145/8 165/4 165/22  
186/18  
abnormal [2] 60/1 60/17  
about [254]  
above [2] 89/19 123/11  
absolute [2] 96/23 96/25  
academy [3] 147/8 180/18  
180/19  
accept [1] 155/14  
accepted [3] 13/21 81/13  
91/9  
access [5] 24/9 24/10  
34/20 110/6 185/14  
accessed [1] 110/3  
accident [60] 18/20 18/25  
19/2 19/11 19/14 19/20  
20/2 21/5 24/19 25/1 33/5  
33/9 33/11 54/1 56/24  
57/5 57/7 57/10 61/25  
67/19 69/4 78/11 94/24  
97/9 97/23 100/18 114/8  
134/7 134/9 143/2 153/16  
153/21 159/16 159/16  
159/18 160/3 165/2 165/4  
165/7 168/5 169/9 169/22  
170/3 173/23 173/25 174/1  
174/8 174/11 174/14 174/16  
175/21 176/18 176/19  
176/24 176/24 177/4  
177/6 179/16 179/20  
179/24  
accidents [10] 137/5  
139/19 144/1 153/10 165/13  
165/15 168/16 174/25  
177/2 186/10  
accordance [8] 22/11 29/9  
55/7 133/7 148/6 175/23  
177/22 193/12  
according [5] 19/8 51/16  
66/22 88/18 157/20  
account [2] 88/7 142/17

A		
<b>accuracy</b> [2] 101/1 139/6	<b>add</b> [2] 37/6 50/15	130/25 131/4 131/20
<b>accurate</b> [5] 16/6 25/20	<b>added</b> [2] 78/22 183/23	131/25 133/17 133/23
31/21 32/2 154/6	<b>adding</b> [1] 132/19	134/19 135/8 135/21 136/5
<b>acknowledged</b> [1] 9/12	<b>Addis</b> [1] 86/20	136/7 137/24 138/9 138/10
<b>acoustics</b> [1] 95/4	<b>addition</b> [3] 79/9 88/5	138/14 142/5 143/9 143/21
<b>acquitted</b> [1] 117/8	171/6	145/8 147/17 147/23
<b>acronym</b> [4] 23/6 36/10	<b>additional</b> [9] 45/25 60/19	148/21 148/25 150/16
37/25 89/10	78/19 79/3 82/3 161/9	150/17 151/3 151/6 152/11
<b>acronyms</b> [1] 36/10	165/12 165/16 179/1	153/2 157/6 157/8 157/12
<b>across</b> [3] 24/12 46/18	<b>address</b> [6] 39/5 40/2	157/18 157/20 157/24
57/8	160/2 160/14 164/5	158/4 158/9 158/16 158/18
<b>act</b> [7] 16/11 32/10 40/19	200/20	161/20 162/14 162/19
132/24 137/17 137/21	<b>addressed</b> [2] 41/2 56/6	162/22 164/15 167/9
170/19	<b>addresses</b> [2] 22/1 36/23	167/24 181/9 181/16 184/13
<b>acted</b> [1] 132/25	<b>adequate</b> [1] 44/14	184/16 184/16 184/24
<b>action</b> [1] 60/18	<b>adequately</b> [1] 46/22	185/2 185/7 190/15
<b>actions</b> [5] 9/5 60/5 110/5	<b>adjourned</b> [3] 116/10	<b>AEG's</b> [5] 104/6 105/14
110/15 127/23	187/24 199/24	142/24 184/17 184/19
<b>activate</b> [2] 112/7 112/15	<b>administer</b> [1] 45/23	<b>aero</b> [1] 56/13
<b>activated</b> [4] 67/7 69/6	<b>administered</b> [1] 13/4	<b>aerodynamic</b> [1] 71/16
84/25 158/17	<b>Administration</b> [1] 22/23	<b>aeronautical</b> [9] 15/22
<b>activation</b> [13] 41/10 41/15	<b>admissible</b> [1] 74/1	16/4 16/11 16/17 86/4 86/5
59/16 60/6 62/25 74/17	<b>admission</b> [4] 73/21 90/21	87/16 171/25 192/10
107/17 107/22 109/24	92/25 150/12	<b>affairs</b> [1] 30/15
114/21 183/8 183/13 189/5	<b>admitted</b> [17] 13/12 13/14	<b>affect</b> [9] 8/25 9/5 9/14
<b>activations</b> [2] 61/8 61/25	57/21 57/22 68/20 68/21	10/9 12/3 36/24 79/10
<b>actively</b> [1] 166/24	74/4 74/5 82/16 82/17	163/15 164/4
<b>activities</b> [1] 188/24	82/23 82/24 91/4 91/5	<b>affected</b> [4] 10/4 11/14
<b>activity</b> [1] 176/16	93/2 93/3 127/15	90/15 91/9
<b>actual</b> [8] 24/7 98/6	<b>adopt</b> [1] 29/20	<b>affecting</b> [1] 12/12
167/25 168/4 168/15	<b>adopted</b> [1] 9/9	<b>affects</b> [4] 10/19 12/6
171/25 186/10 193/3	<b>ADs</b> [1] 165/20	12/8 131/13
<b>actually</b> [26] 8/3 8/6 8/11	<b>advantages</b> [1] 64/7	<b>affirm</b> [1] 140/2
31/1 63/24 65/20 75/5	<b>advisory</b> [1] 49/23	<b>afford</b> [1] 166/16
83/3 83/10 97/25 99/11	<b>AEG</b> [84] 15/23 15/24	<b>AFM</b> [6] 36/12 36/23 37/3
108/25 109/22 119/18	26/15 33/22 33/23 34/6	37/10 37/12 38/18
120/16 131/21 138/12 145/6	34/7 35/15 51/13 86/2	<b>AFMs</b> [2] 36/13 36/20
147/23 150/21 152/5	87/12 96/17 97/5 99/2	<b>afraid</b> [1] 197/21
154/10 155/2 155/18	104/22 105/1 105/21 115/5	<b>after</b> [38] 9/20 12/21
156/16 190/16	115/9 115/11 122/5 129/5	45/2 53/8 61/6 66/25
<b>AD</b> [3] 167/1 189/4 191/18	129/10 129/14 129/18	69/5 79/6 86/17 88/3
	130/3 130/5 130/6 130/23	125/18 125/22 126/12

<b>A</b>		
<b>after...</b> [25] 127/11 128/9 129/4 129/12 129/21 130/5 131/22 131/25 132/21 134/9 134/16 158/9 158/21 162/14 162/21 162/22 167/5 172/15 177/22 179/15 180/13 185/18 188/6 188/17 196/21 <b>afternoon</b> [4] 116/14 116/15 145/16 145/17 <b>again</b> [48] 15/9 17/4 21/22 25/7 31/3 33/19 39/12 40/8 41/24 46/4 52/11 55/16 59/10 59/20 59/22 62/4 65/22 67/11 68/7 68/23 69/3 69/14 72/13 74/6 75/12 75/23 76/17 78/18 79/14 83/2 83/9 84/25 87/18 91/6 105/12 107/1 110/13 111/10 112/24 129/1 135/18 141/2 142/13 156/2 157/16 160/6 166/16 192/20 <b>against</b> [2] 12/16 62/12 <b>agencies</b> [6] 122/6 173/20 177/17 178/14 179/11 179/16 <b>agency</b> [8] 8/8 22/10 80/25 95/24 122/5 133/25 134/5 190/16 <b>agenda</b> [1] 156/22 <b>ages</b> [1] 83/19 <b>ago</b> [5] 24/6 35/24 49/11 136/11 139/11 <b>agree</b> [25] 6/3 6/8 9/7 117/17 117/23 137/8 147/11 148/21 153/23 155/5 157/24 158/10 158/12 158/21 159/6 159/25 160/12 161/3 161/19 163/1 163/4 163/4 163/6 164/15	164/20 <b>agreed</b> [5] 33/23 41/24 126/19 130/25 142/14 <b>agreement</b> [7] 9/4 11/11 92/4 111/19 116/18 117/12 120/17 <b>agrees</b> [1] 185/14 <b>agricultural</b> [1] 173/21 <b>ahead</b> [8] 4/20 58/6 116/2 120/13 122/16 128/25 131/17 151/12 <b>ahold</b> [2] 37/7 38/8 <b>aides</b> [2] 166/19 175/8 <b>air</b> [58] 20/3 24/20 24/20 46/1 53/7 59/5 59/14 78/4 78/12 79/7 84/14 88/16 90/10 90/11 90/12 100/23 114/10 125/19 125/22 126/25 130/20 132/2 151/14 153/10 153/10 155/25 156/5 158/16 158/22 159/11 159/15 159/18 159/21 160/3 160/15 160/22 162/15 162/17 162/21 164/1 167/5 168/1 168/16 172/8 173/20 173/20 174/4 174/6 177/20 180/21 181/3 181/12 182/19 182/19 182/20 185/18 193/5 193/8 <b>Air's</b> [1] 154/13 <b>airborne</b> [1] 85/17 <b>aircraft</b> [129] 7/19 16/7 16/13 18/20 19/4 19/5 19/19 20/3 25/21 26/18 27/5 27/7 27/10 27/14 28/22 28/23 30/15 30/24 31/8 32/14 34/23 35/1 35/3 35/5 36/1 36/5 36/6 36/7 36/10 37/13 38/3 38/6 40/5 42/15 42/18 42/21 44/12 45/9 46/8	46/19 47/17 47/17 52/18 53/20 55/18 55/23 55/25 56/7 56/24 57/15 58/20 59/10 59/12 59/24 60/13 61/9 61/9 62/7 62/12 62/18 64/12 65/7 67/19 68/1 71/12 71/13 71/17 72/21 75/24 76/20 78/12 85/9 85/13 87/2 94/24 103/2 103/7 106/2 106/5 115/21 118/10 118/15 118/19 118/25 121/12 121/22 122/1 122/19 122/25 123/5 123/9 124/10 124/14 124/19 124/24 125/17 125/23 126/1 126/11 126/16 126/20 129/3 133/9 134/14 137/25 141/21 144/1 146/8 147/1 148/12 148/16 148/19 148/22 149/3 149/16 149/20 154/6 154/18 163/2 163/10 164/5 170/20 174/8 175/16 176/7 178/18 179/11 182/2 182/23 <b>aircrafts</b> [1] 27/6 <b>airline</b> [13] 28/18 30/20 53/12 66/18 67/24 78/2 78/17 78/18 101/6 149/10 149/14 172/4 187/3 <b>Airline's</b> [1] 154/14 <b>airlines</b> [35] 19/21 20/12 26/20 27/9 27/11 27/20 28/13 28/15 28/24 30/6 42/2 42/12 51/19 51/22 66/24 73/11 79/2 86/19 88/16 89/14 90/15 91/9 95/8 98/22 100/22 122/21 159/7 159/16 160/7 161/4 161/7 162/15 162/22 168/1 168/16 <b>airman</b> [5] 22/18 45/24 173/19 174/2 180/21

A		
<b>airplane</b> [17] 26/15 26/17 26/19 26/21 27/13 40/6 42/1 45/23 48/12 57/14 76/21 84/23 88/9 112/21 136/13 137/13 144/23	101/13 103/23 115/4 119/3 126/8 127/17 127/23 128/5 128/9 128/20 129/5 132/3 133/16 134/21 142/8 145/10 154/4 157/4 159/22 160/10 161/9 161/13 161/16 161/23 163/1 163/9 163/9 163/13 163/19 164/8 167/5 170/18 171/4 171/9 172/23 172/24 173/12 174/3 175/10 176/16 177/2 177/4 177/16 178/2 178/8 178/12 178/21 178/24 179/11 180/7 182/10 182/16 182/24 183/23 184/7 184/9 184/16 186/6 187/6 188/1 188/20 191/24 192/7 193/19 193/22 196/21 199/22	56/20 57/3 60/2 64/2 90/13 95/5 95/14 103/14 104/1 104/17 111/22 114/20 115/3 118/17 132/2 132/4 140/9 141/6 144/15 147/3 147/25 148/12 149/6 158/18 160/5 160/10 160/13 164/11 165/2 174/22 175/15 175/21 176/8 177/25 178/8 178/12 178/23 179/1 185/17 187/14 191/19 196/13 197/11 199/10
<b>airplanes</b> [3] 22/2 22/4 56/8	<b>alternative</b> [1] 86/7	
<b>airport</b> [1] 87/22	<b>alters</b> [1] 18/15	
<b>Airs</b> [3] 45/22 175/17 178/4	<b>although</b> [3] 7/5 7/17 7/25	
<b>airspeeds</b> [1] 125/2	<b>altitude</b> [2] 165/25 166/1	
<b>airworthiness</b> [18] 19/5 22/1 22/3 31/13 89/7 126/2 126/3 126/6 134/15 134/18 135/22 160/6 160/9 160/12 167/2 187/18 188/15 191/19	<b>always</b> [5] 36/9 155/9 155/12 155/14 161/16	
<b>airworthy</b> [1] 122/20	<b>am</b> [19] 26/23 30/12 34/1 42/7 42/12 66/11 67/4	
<b>alarmingly</b> [1] 107/12	78/9 78/25 97/4 98/9 98/12 101/16 114/6 127/24	
<b>alcohol</b> [1] 56/17	128/20 138/23 142/13 180/20	
<b>alert</b> [3] 131/3 132/9 142/7	<b>AMERICA</b> [1] 1/5	
<b>alive</b> [1] 87/24	<b>American</b> [3] 30/4 31/8 52/18	
<b>all</b> [140] 4/4 5/10 6/7 6/25 7/3 9/25 10/4 10/16 10/24 11/1 12/25 13/18 15/14 16/4 16/23 17/23 18/4 18/18 19/3 20/14 21/7 21/18 25/12 25/18 26/20 27/6 28/5 28/12 28/21 29/13 30/25 32/4 33/18 33/24 34/3 35/1 35/24 37/9 37/12 39/8 41/2 42/23 44/2 44/9 44/12 48/16 52/22 53/9 54/12 55/11 55/25 56/6 57/25 58/8 58/12 63/18 65/21 66/16 66/25 68/8 68/23 72/3 74/7 80/19 81/13 85/4 88/23 90/8 91/2 91/14 93/2 93/15 98/25	<b>Americans</b> [2] 31/25 52/11 <b>among</b> [2] 26/16 147/20 <b>amount</b> [2] 75/18 78/23 <b>amounts</b> [1] 51/7 <b>ANAC</b> [1] 83/20 <b>analysis</b> [10] 57/4 59/22 75/22 152/7 153/24 155/1 164/24 169/18 170/4 170/5 <b>analyze</b> [2] 20/23 47/22 <b>angle</b> [5] 71/2 71/13 71/15 103/11 104/2	
	<b>annex</b> [8] 3/17 19/1 54/5 54/7 55/7 55/8 68/3 133/8	

<b>A</b>		
<b>annexes [1]</b> 25/12	108/7 119/7 119/10 120/16	47/8 51/14 53/22 60/18
<b>announced [1]</b> 186/24	120/24 134/12 137/6 141/11	62/6 63/7 63/21 71/23
<b>announcement [2]</b> 88/4	145/2 151/17 164/3 173/3	82/11 105/22 154/6 176/5
187/1	182/6 188/8 188/21 189/8	177/3 184/7 191/13
<b>announcing [1]</b> 92/4	192/1 195/13	<b>appropriately [2]</b> 87/21
<b>another [7]</b> 6/13 57/8	<b>anyway [1]</b> 171/9	169/12
72/5 76/25 153/7 154/3	<b>anywhere [1]</b> 169/18	<b>approval [7]</b> 24/2 28/9
157/4	<b>AOA [18]</b> 70/24 71/2	46/16 50/1 173/9 173/11
<b>answer [9]</b> 102/4 110/21	71/10 71/12 71/24 72/2	181/3
117/5 131/14 132/15 135/15	104/17 112/6 112/14 119/9	<b>approve [7]</b> 16/7 25/21
135/16 136/12 167/1	120/18 121/6 121/17 132/4	40/10 88/20 154/7 177/6
<b>answered [1]</b> 135/14	132/4 141/16 141/20 189/5	183/20
<b>anticipate [3]</b> 7/18 197/6	<b>apologize [2]</b> 21/13 128/1	<b>approved [4]</b> 36/6 38/7
197/13	<b>Apparently [1]</b> 181/24	49/12 112/5
<b>anticipated [1]</b> 189/9	<b>appear [3]</b> 57/16 80/13	<b>approving [2]</b> 114/8 175/7
<b>anticipates [1]</b> 189/3	91/13	<b>approximately [3]</b> 84/13
<b>any [59]</b> 6/9 11/15 14/15	<b>appeared [1]</b> 200/9	86/16 172/13
15/11 18/16 31/13 38/2	<b>appears [2]</b> 17/5 107/20	<b>April [1]</b> 189/4
45/16 46/9 56/3 56/14	<b>APPELLATE [1]</b> 2/4	<b>April 2019 [1]</b> 189/4
56/17 56/18 71/17 76/9	<b>Appendix [2]</b> 17/1 21/19	<b>are [184]</b> 4/6 5/11 6/2
77/6 78/19 84/23 85/16	<b>APPLEBAUM [2]</b> 2/7 4/10	6/17 6/17 7/22 8/24 9/2
97/15 97/18 97/18 98/10	<b>applicability [1]</b> 98/14	10/1 11/8 11/14 12/2 12/5
99/9 99/21 101/1 101/17	<b>applicable [8]</b> 16/13 21/5	12/5 14/13 15/17 21/21
101/20 108/15 112/20 118/6	26/25 32/14 42/20 46/11	21/23 22/11 22/12 22/14
118/13 118/24 121/5 121/10	63/5 163/16	22/17 23/14 23/14 25/1
122/24 123/22 129/19	<b>applied [3]</b> 104/23 105/23	26/5 26/22 29/20 29/21
137/2 137/20 144/3 144/5	151/24	30/10 31/8 31/19 33/25
144/17 145/21 151/24	<b>apply [12]</b> 23/19 34/10	34/9 37/1 37/11 39/8
152/7 153/24 154/1 155/1	36/17 51/18 64/19 95/15	39/15 39/16 39/17 40/8
161/4 161/8 161/9 162/18	128/16 166/5 166/11 166/17	40/8 40/18 41/6 41/7 41/7
165/11 165/16 172/2 179/18	196/14 196/17	42/6 44/8 44/21 46/9
180/22 199/3	<b>appreciate [4]</b> 74/7 91/17	47/7 49/9 50/13 51/1
<b>anybody [9]</b> 28/20 31/4	139/24 197/1	51/12 52/13 52/18 53/10
94/20 95/5 95/11 99/8	<b>appreciated [1]</b> 198/7	55/25 56/9 61/1 64/15
100/7 106/16 109/5	<b>approach [5]</b> 13/17 53/1	64/16 64/21 66/10 67/2
<b>anyone [6]</b> 121/7 121/12	66/19 72/4 175/13	71/21 71/21 74/8 76/19
137/20 145/1 150/13	<b>approaches [1]</b> 175/9	78/8 79/21 79/23 81/12
150/15	<b>approaching [2]</b> 160/19	83/19 89/6 89/6 89/25
<b>anyplace [1]</b> 31/5	160/25	90/9 90/9 91/2 91/11 94/4
<b>anything [24]</b> 15/1 33/4	<b>appropriate [24]</b> 10/14	94/7 94/9 94/12 95/4
39/3 41/16 53/25 97/2	16/6 16/18 25/20 31/21	95/25 97/1 98/8 98/10
	32/1 35/22 36/21 45/24	98/20 98/24 100/13

<b>A</b>			
<b>are... [90]</b>	100/17 101/14 101/24 102/15 102/21 103/10 104/20 104/22 105/9 106/23 110/15 111/23 114/8 116/6 116/20 117/15 117/24 119/22 121/20 121/24 122/1 122/19 125/18 125/22 126/3 126/11 127/6 127/7 127/12 130/16 132/12 133/14 133/15 136/13 136/15 137/13 138/19 138/24 139/2 139/7 139/9 139/18 140/12 140/16 140/19 140/23 140/24 140/25 141/5 142/8 142/12 143/1 143/18 143/23 144/16 144/16 147/7 151/19 152/3 152/15 154/1 154/13 154/15 154/18 155/21 155/21 159/4 159/15 159/20 159/22 160/5 160/9 160/17 161/13 163/13 163/16 163/16 164/11 165/22 167/19 172/7 175/11 181/19 182/21 183/6 189/9 195/15 196/16 197/19 200/9	<b>articles [1]</b> 21/25 <b>as [153]</b> 6/17 7/14 7/23 7/23 7/24 8/2 8/20 8/23 9/13 10/11 10/18 11/18 11/19 11/23 13/21 14/1 15/17 19/25 20/6 20/17 20/20 21/24 25/24 30/2 30/10 31/8 31/23 34/11 34/12 35/4 35/21 37/24 38/19 41/7 42/5 43/19 44/7 44/10 45/10 45/21 46/6 46/6 46/23 47/23 48/19 48/21 48/22 48/23 49/2 51/18 52/8 52/11 53/2 53/3 53/25 54/13 54/23 55/16 56/14 61/12 66/12 67/20 68/23 69/19 72/8 73/14 77/14 78/24 81/14 83/24 84/20 85/25 86/6 88/8 88/8 88/19 89/7 90/10 91/8 91/8 92/25 93/10 94/5 98/1 100/14 100/25 102/11 102/11 102/16 102/20 102/23 103/7 103/10 103/14 104/2 110/7 110/7 110/9 115/6 117/25 119/16 122/20 124/22 134/10 139/9 140/12 141/7 143/8 143/14 144/2 144/9 145/24 150/13 150/15 150/15 151/17 160/24 162/7 165/11 165/25 166/12 170/19 170/23 173/8 174/14 175/21 175/22 175/25 176/10 176/24 177/1 177/15 177/19 177/19 178/1 179/2 181/7 181/15 183/19 184/14 189/22 191/24 192/9 192/11 196/6 196/8 196/11 196/12 196/19 197/6 198/15 198/15 198/15	<b>aside [1]</b> 11/12 <b>ask [24]</b> 9/24 12/21 15/21 43/9 58/6 58/17 64/2 68/25 74/11 77/15 96/11 115/14 128/25 131/12 131/17 138/19 142/22 155/22 170/10 179/25 193/19 193/24 195/22 196/4 <b>asked [21]</b> 94/12 94/14 94/23 95/14 98/13 106/1 106/12 113/22 115/3 115/6 125/12 168/12 190/4 190/14 190/25 192/3 192/25 193/17 193/23 194/11 196/14 <b>asking [3]</b> 88/11 111/8 135/12 <b>aspects [9]</b> 6/20 6/20 12/18 15/5 112/5 112/13 119/4 121/17 171/21 <b>asserted [1]</b> 79/9 <b>assess [2]</b> 183/7 183/13 <b>assessed [1]</b> 47/18 <b>assessment [2]</b> 9/7 183/9 <b>assign [1]</b> 37/7 <b>assigned [1]</b> 163/16 <b>ASSISTANT [1]</b> 1/20 <b>associated [2]</b> 131/1 189/1 <b>assume [7]</b> 38/19 81/12 85/10 85/24 87/9 132/8 171/23 <b>assumes [1]</b> 174/16 <b>assuming [8]</b> 31/24 32/21 39/8 53/14 80/25 107/21 135/7 135/7 <b>assumption [7]</b> 75/16 100/16 109/1 109/3 109/6 111/7 111/18 <b>assumption-making [1]</b> 111/7 <b>assumptions [10]</b> 107/10

<b>A</b>		
<b>assumptions... [9]</b>	107/13 108/8 108/9 108/13 108/17 108/20 109/1 109/23 111/14	
<b>at [221]</b>		
<b>Atlantic [1]</b>	177/24	
<b>attach [10]</b>	58/25 59/9 60/10 60/24 61/14 62/3 69/11 69/25 70/15 74/13	
<b>attack [5]</b>	71/3 71/13 71/16 103/11 104/2	
<b>attention [15]</b>	14/7 17/1 25/22 26/11 33/19 41/22 50/19 55/4 83/4 83/11 83/16 89/15 92/2 187/14 189/12	
<b>attitude [4]</b>	61/10 103/3 103/6 103/6	
<b>attorney [6]</b>	1/17 1/20 20/20 93/21 119/24 192/3	
<b>attorneys [3]</b>	18/12 18/13 185/18	
<b>audit [2]</b>	179/25 180/4	
<b>audits [1]</b>	179/12	
<b>Augmentation [3]</b>	32/13 98/5 156/16	
<b>AUGUST [5]</b>	1/7 4/2 195/10 197/23 200/15	
<b>August 26th [1]</b>	197/23	
<b>authenticity [3]</b>	82/8 82/10 82/12	
<b>author [4]</b>	95/1 95/2 95/9 106/14	
<b>authored [2]</b>	95/5 95/11	
<b>authorities [25]</b>	20/7 29/4 29/21 31/24 67/23 70/1 81/10 81/11 83/19 89/20 89/22 98/18 98/18 98/20 99/11 99/22 99/25 100/8 140/10 153/21 153/22 154/14 154/15 155/6 155/6	
<b>authority [4]</b>	52/12 67/20	
<b>B</b>		
<b>back [29]</b>	14/8 15/16 24/18 24/24 24/24 48/11 55/24 61/16 61/19 70/3 75/15 97/22 116/3 127/8 127/9 128/24 131/19 150/11 157/8 166/3 166/15 167/8 171/11	
		174/7 175/19 177/21 183/16 187/3 195/9 <b>backdrop [1]</b> 62/12 <b>background [6]</b> 14/10 55/20 171/20 171/21 182/25 196/15 <b>backing [5]</b> 126/23 128/23 131/8 132/12 142/14 <b>backup [1]</b> 72/1 <b>bailiwick [6]</b> 67/12 113/11 113/16 113/17 113/24 152/24 <b>based [43]</b> 26/20 27/6 27/6 27/9 28/12 28/15 28/18 30/6 30/20 33/21 34/7 38/10 40/10 42/2 42/11 42/15 48/23 51/19 52/2 52/6 55/6 62/20 62/22 64/6 81/14 86/3 87/13 88/6 97/5 105/25 109/8 110/7 111/3 122/20 123/18 124/1 126/7 126/8 133/19 138/9 151/19 152/3 156/24 <b>basic [4]</b> 19/1 20/1 33/3 45/2 <b>basically [16]</b> 17/14 18/25 19/25 37/12 37/21 42/19 46/16 63/18 71/11 123/7 174/5 182/4 182/6 183/16 191/6 194/25 <b>basis [8]</b> 9/10 17/5 24/13 109/21 109/25 111/9 127/4 178/3 <b>BAUR [2]</b> 2/17 5/5 <b>be [179]</b> 5/14 5/15 5/25 6/3 6/3 6/4 7/7 7/7 9/4 9/10 9/19 11/15 11/20 12/4 12/16 13/3 13/12 13/25 14/13 15/6 16/24 17/5 18/14 21/11 23/1 23/16 23/16 26/7 27/16 28/14

<b>B</b>		
<b>be...</b> [149] 28/17 30/5 31/4 31/13 31/18 31/20 31/20 31/25 34/2 34/14 34/15 34/17 34/21 34/22 35/7 35/9 36/2 37/15 39/1 39/3 39/4 39/12 39/14 41/9 41/19 41/19 41/20 42/14 42/15 42/17 42/20 42/20 42/22 43/22 44/21 47/18 47/24 48/13 48/22 49/1 50/7 50/23 51/5 52/18 53/17 53/21 54/9 54/11 54/20 54/21 55/12 57/18 57/21 59/10 60/12 60/25 62/8 63/21 64/21 67/16 68/20 70/19 70/23 71/9 71/20 72/13 74/3 75/1 75/24 78/21 79/21 80/13 81/7 81/8 81/10 81/17 82/9 82/16 82/23 84/24 85/18 87/24 89/21 89/22 91/2 91/4 91/13 93/2 93/11 95/4 96/5 96/6 96/24 101/21 103/22 107/25 111/11 111/21 120/21 121/3 125/20 126/25 127/13 128/6 128/20 128/22 130/19 133/11 134/2 139/2 151/6 151/16 154/23 157/16 159/13 163/2 163/10 163/20 163/23 163/24 166/22 168/18 171/20 174/1 174/5 176/21 179/24 182/17 182/21 185/1 185/5 185/23 186/4 188/3 189/19 191/9 192/12 192/16 193/14 194/10 197/8 197/15 197/15 197/17 198/7 198/11 198/12 199/10 199/15 <b>became</b> [5] 158/9 158/21	159/1 172/16 179/14 <b>because</b> [33] 10/9 11/3 29/11 29/14 35/14 35/22 36/23 37/19 41/17 52/11 58/4 63/2 76/4 76/23 78/5 85/13 105/20 113/17 124/1 126/13 127/5 128/16 129/10 131/2 142/14 144/13 151/8 164/24 166/6 181/24 195/11 198/11 199/6 <b>become</b> [2] 182/9 182/11 <b>becoming</b> [1] 39/9 <b>been</b> [98] 5/19 10/24 11/2 13/11 13/21 19/6 25/8 27/4 28/25 30/4 34/16 34/20 35/19 43/1 43/11 43/13 46/10 46/25 47/3 47/6 52/22 54/13 55/8 55/25 56/6 56/19 61/17 61/22 64/2 72/7 72/8 75/4 76/4 76/24 78/13 78/14 79/2 84/6 85/20 86/10 87/14 87/20 87/22 89/13 91/9 92/12 97/14 111/7 118/18 118/20 122/4 123/11 124/16 126/9 126/14 126/18 126/20 130/12 132/1 133/20 135/25 143/25 144/2 144/5 145/18 146/18 149/13 149/19 151/17 161/17 165/3 165/12 165/14 165/17 165/22 166/9 167/10 168/4 168/13 169/8 170/19 170/22 171/19 171/20 182/17 183/15 185/3 185/7 186/15 186/16 186/18 188/14 188/22 190/23 191/10 192/18 195/20 197/9 <b>before</b> [21] 1/12 40/4 51/12 60/6 61/8 97/21 100/8 101/8 103/5 106/2	114/19 115/20 133/5 133/21 160/7 162/15 171/10 177/5 181/6 188/6 196/17 <b>begin</b> [4] 28/10 28/11 80/22 134/4 <b>beginning</b> [1] 103/4 <b>begun</b> [1] 11/3 <b>behalf</b> [1] 4/23 <b>behaved</b> [1] 85/25 <b>behind</b> [2] 49/22 61/18 <b>being</b> [20] 4/17 5/10 61/24 62/5 65/2 65/9 96/12 110/13 113/22 115/6 133/15 142/4 145/8 173/3 173/18 175/22 178/16 183/17 183/18 197/7 <b>believe</b> [89] 6/10 9/11 9/17 13/10 16/15 17/2 19/8 47/2 47/10 48/25 54/21 54/24 55/13 57/18 67/22 68/12 81/4 82/8 83/25 84/3 86/8 87/18 91/22 98/7 103/25 104/5 104/8 108/18 108/22 109/8 109/10 109/10 109/21 111/4 111/11 111/21 113/3 113/15 114/4 114/12 115/10 117/14 118/11 118/16 119/11 119/12 119/13 119/16 121/8 121/14 121/19 123/1 123/22 123/25 125/5 126/23 128/22 128/23 128/23 129/2 134/22 136/2 136/23 137/7 140/8 140/25 144/11 159/13 161/22 162/18 165/14 167/7 168/2 168/6 168/12 178/17 183/6 183/9 185/10 185/16 187/4 187/13 188/18 190/10 190/18 190/21 191/18 192/12 197/3 <b>believed</b> [1] 128/6 <b>believes</b> [1] 61/21

<b>B</b>		
<b>belittle</b> [1] 109/18	18/13 18/21 23/8 26/1	192/3 193/18 193/20
<b>Ben</b> [1] 4/22	30/11 30/14 36/18 37/5	193/25 194/9 199/21
<b>benefit</b> [1] 25/7	38/20 39/21 41/11 41/17	<b>Boeing's</b> [22] 6/7 33/21
<b>BENJAMIN</b> [1] 2/16	43/1 46/12 50/22 50/25	35/14 51/8 74/16 74/21
<b>Berkeley</b> [1] 197/12	51/15 53/7 58/20 60/18	76/8 77/3 77/17 84/16
<b>best</b> [6] 20/10 27/21	62/21 63/2 63/9 66/24	86/20 88/15 107/15 112/4
70/18 179/12 200/7 200/11	69/19 69/21 72/11 73/11	112/18 113/7 141/12 157/5
<b>better</b> [4] 70/20 165/14	73/13 74/19 77/15 78/4	158/2 188/24 189/14 194/5
166/22 195/18	79/7 79/9 80/12 80/14	<b>bomb</b> [1] 137/17
<b>between</b> [18] 6/11 47/17	82/12 83/7 83/14 84/1	<b>booklet</b> [1] 50/17
47/20 71/14 105/3 109/17	84/3 84/15 85/24 85/25	<b>Border</b> [1] 179/22
109/18 146/5 149/23	87/9 87/11 87/17 88/4	<b>both</b> [10] 10/17 13/10 16/5
162/17 163/1 163/10 182/6	88/6 88/12 91/23 92/7	75/8 100/5 100/6 108/4
186/10 188/22 191/17	94/16 98/10 105/22 107/12	112/22 158/22 159/8
192/9 199/1	107/19 108/8 108/12	<b>bottle</b> [1] 41/5
<b>bewildered</b> [1] 127/24	108/16 110/5 111/7 115/5	<b>bottom</b> [5] 20/11 101/6
<b>beyond</b> [5] 8/5 51/24	116/18 117/25 117/25 118/3	189/12 189/13 198/20
102/2 161/9 171/6	118/8 118/13 118/13 119/3	<b>BRAMMEIER</b> [4] 2/10 4/9
<b>bind</b> [1] 98/17	119/8 120/18 120/23 121/5	195/15 195/19
<b>bit</b> [24] 20/15 22/7 26/24	121/10 121/16 121/20 123/3	<b>branch</b> [3] 175/3 175/6
27/8 32/21 36/1 43/15	123/3 123/15 124/4 124/7	176/3
43/25 45/19 47/13 62/11	124/19 124/24 126/21	<b>BRANDON</b> [2] 2/16 5/1
67/11 84/11 84/19 101/23	127/1 127/12 127/13 127/14	<b>Brazilian</b> [1] 99/10
103/8 133/21 171/3 171/8	128/5 129/10 130/4 130/22	<b>break</b> [5] 93/5 116/2 116/7
171/15 173/2 173/17 174/9	130/23 130/24 131/2	171/3 187/22
180/25	132/10 134/25 136/4 140/6	<b>brief</b> [3] 58/2 157/16
<b>black</b> [1] 51/24	141/11 141/15 141/19 141/24	196/8
<b>board</b> [24] 16/19 23/4	142/3 142/23 143/7 143/16	<b>briefed</b> [1] 8/23
23/5 53/9 85/5 85/14	145/2 145/24 149/23	<b>briefing</b> [1] 58/10
147/4 148/1 148/3 148/10	150/2 150/6 150/11 150/14	<b>briefly</b> [27] 5/16 13/17
149/8 152/5 152/13 154/20	150/21 151/5 151/5 154/18	17/12 21/22 22/20 25/9
154/24 155/3 157/8 157/13	155/18 155/22 156/9	46/14 47/4 50/10 53/1
158/5 167/25 168/19	156/12 156/18 156/23	53/5 66/4 66/8 66/20
168/25 169/4 195/2	157/11 157/11 157/19	72/4 86/23 90/24 94/13
<b>Board's</b> [1] 152/8	157/19 159/17 159/25	117/14 130/19 169/16
<b>boards</b> [1] 65/5	160/17 164/18 164/18	172/19 175/5 176/14
<b>body</b> [2] 15/17 47/3	167/23 167/23 169/19	177/12 179/5 195/14
<b>BOEING</b> [177] 1/8 2/16	169/19 169/25 169/25	<b>briefs</b> [1] 6/7
4/5 4/23 4/25 5/2 5/20	184/12 184/12 184/14	<b>bring</b> [1] 33/1
5/23 6/3 7/5 10/7 11/4	184/14 185/18 186/24	<b>broad</b> [1] 151/9
11/23 15/22 16/20 17/10	187/1 187/6 187/10 189/9	<b>broke</b> [3] 56/4 56/12
	189/10 189/22 190/4 190/8	56/12

<b>B</b>	195/11 196/14 197/14 198/12 199/2 199/15 <b>buy</b> [1] 31/7	<b>CANIC</b> [7] 3/22 3/23 3/24 89/8 89/9 187/18 188/14 <b>cannot</b> [4] 148/25 149/3 164/24 194/23 <b>Capabilities</b> [1] 32/12 <b>capability</b> [1] 64/14 <b>capable</b> [2] 64/12 70/24 <b>capacity</b> [1] 147/8 <b>cardboard</b> [1] 195/1 <b>care</b> [1] 116/2 <b>career</b> [3] 43/10 45/13 172/11 <b>carried</b> [2] 55/6 178/8 <b>carrier</b> [14] 35/1 39/23 39/23 52/6 77/19 77/19 149/11 149/14 164/2 174/4 180/21 182/19 182/19 182/20 <b>carrier's</b> [1] 181/4 <b>carriers</b> [4] 52/2 77/15 154/11 173/20 <b>carry</b> [1] 145/11 <b>cascading</b> [6] 34/13 38/22 41/20 76/8 76/12 137/24 <b>case</b> [37] 1/5 4/4 5/21 7/6 8/24 9/2 10/18 10/18 11/2 12/2 12/4 29/7 32/22 34/10 42/17 46/9 50/10 51/13 53/20 72/15 76/1 77/18 78/2 89/12 91/22 92/5 111/11 119/23 137/16 151/19 152/22 153/8 163/25 168/18 199/1 199/5 199/7 <b>cases</b> [6] 21/5 29/5 31/1 133/4 174/12 174/18 <b>CASSELL</b> [17] 2/3 4/7 7/8 7/12 9/12 68/22 94/12 94/14 94/23 113/22 132/19 155/17 172/25 196/12 196/19 196/20 199/1 <b>Cassell's</b> [2] 8/22 10/4
<b>brother</b> [1] 4/15 <b>brought</b> [1] 21/14 <b>budget</b> [1] 178/13 <b>buffer</b> [1] 199/8 <b>build</b> [2] 36/1 58/2 <b>building</b> [1] 30/15 <b>bulk</b> [1] 37/19 <b>bullet</b> [2] 112/3 112/18 <b>bulletin</b> [3] 159/17 159/22 160/1 <b>Bureau</b> [3] 19/20 67/19 69/4 <b>bureaucracy</b> [1] 135/11 <b>BURNS</b> [1] 2/13 <b>business</b> [3] 172/1 186/3 200/20 <b>busy</b> [1] 197/15 <b>but</b> [94] 6/21 7/15 9/25 12/1 12/4 13/25 14/20 14/25 20/16 20/22 25/9 25/17 26/10 32/7 33/7 33/19 34/21 35/4 35/11 36/4 40/8 41/7 42/25 49/17 49/21 51/8 51/24 60/18 64/2 64/6 65/3 66/4 67/11 67/13 71/6 72/14 74/1 74/7 83/10 90/8 90/20 94/9 96/10 96/23 96/25 97/4 98/5 102/11 105/10 105/16 106/1 110/12 111/6 111/16 113/3 115/9 130/10 132/2 133/18 134/5 141/6 145/21 146/11 147/22 151/1 151/24 153/23 155/1 157/17 159/16 159/20 161/25 162/15 162/21 163/14 165/7 167/22 169/16 170/21 175/15 176/11 178/12 180/12 183/6 184/20 190/1 194/4 195/3	195/11 196/14 197/14 198/12 199/2 199/15 <b>buy</b> [1] 31/7	

<b>C</b>		
<b>Cassell</b> .....13	<b>certificated</b> [8] 43/22 43/25 44/7 145/18 173/7 174/2 175/22 176/7	<b>changes</b> [7] 15/25 43/3 88/8 189/3 189/4 189/21 199/1
[1] 3/6	<b>certificates</b> [3] 22/16 172/2 178/9	<b>changing</b> [1] 66/13
<b>Cassell</b> .....171 [1]	<b>certificating</b> [1] 183/22	<b>Chapter</b> [1] 18/4
3/10	<b>certification</b> [37] 17/9 21/25 22/17 22/19 23/23	<b>character</b> [2] 91/3 91/11
<b>catastrophic</b> [8] 16/20 74/18 85/5 85/6 107/18 137/25 194/6 197/12	43/21 44/10 45/7 45/11 72/11 72/20 94/15 115/19	<b>Characteristic</b> [2] 98/5 156/16
<b>category</b> [4] 22/2 22/4 57/15 182/22	121/22 122/1 122/19 122/25 135/9 140/7 140/21	<b>characterize</b> [1] 35/21
<b>causal</b> [1] 144/12	148/12 148/16 148/19	<b>CHAREST</b> [1] 2/13
<b>cause</b> [13] 133/3 134/8 137/21 138/7 144/6 144/9 145/3 167/25 168/4 168/15 170/20 170/24 190/5	148/22 149/3 150/8 156/23 168/22 173/7	<b>charge</b> [3] 54/1 128/21 183/19
<b>caused</b> [8] 41/10 130/22 136/17 137/18 139/19 153/11 169/22 170/3	173/19 173/19 175/12 176/6 176/17 180/21	<b>charged</b> [2] 7/14 41/4
<b>causes</b> [5] 143/23 144/17 144/17 144/23 153/16	180/21 181/6	<b>charter</b> [2] 172/17 173/4
<b>CBT</b> [1] 81/13	<b>certified</b> [3] 36/7 77/2 122/20	<b>CHASE</b> [2] 2/12 4/11
<b>center</b> [6] 22/10 43/22 44/7 173/8 177/24 197/12	<b>certifies</b> [1] 22/16	<b>chat</b> [1] 131/3
<b>centers</b> [2] 44/5 44/8	<b>certify</b> [2] 200/4 200/12	<b>check</b> [5] 38/14 45/2 93/7 174/23 175/14
<b>certain</b> [23] 21/5 22/12 26/17 34/7 35/23 37/7 37/8 37/17 41/6 46/20 46/21 46/23 65/8 87/18 96/24 97/4 101/24 122/12 122/13 154/22 174/20 174/22 178/15	<b>Cessna</b> [1] 182/5	<b>checking</b> [1] 176/1
<b>certainly</b> [9] 8/1 8/2 9/20 9/24 11/22 12/1 52/8 105/9 197/18	<b>CFM</b> [5] 37/25 38/2 38/17 38/22 38/24	<b>checklist</b> [29] 16/14 32/15 34/16 38/13 38/13 38/15
<b>certainty</b> [12] 15/22 16/4 16/11 16/18 86/5 86/9 87/16 87/19 87/19 96/23 165/12 192/10	<b>CFR</b> [3] 21/8 21/20 21/23	38/16 39/4 39/17 39/21
<b>certificate</b> [10] 28/1 48/4 49/16 103/5 149/1 156/7 172/4 172/6 177/23 200/2	<b>CFRs</b> [1] 95/15	40/6 40/13 40/17 40/24
<b>Certificate</b> .....200 [1] 3/11	<b>CHAD</b> [2] 1/16 5/7	40/25 41/8 41/12 41/14 44/23 85/16 85/19 86/23
	<b>chain</b> [2] 137/9 137/14	87/4 87/5 126/8 146/9
	<b>chair</b> [1] 125/16	146/22 166/7 173/11
	<b>chairman</b> [5] 55/2 179/2 179/6 179/14 180/5	<b>checklists</b> [6] 32/17 38/17 39/21 40/8 146/12 146/15
	<b>challenge</b> [4] 8/9 17/5 194/18 196/5	<b>Chicago</b> [1] 2/11
	<b>Challengers</b> [1] 175/16	<b>chief</b> [6] 1/20 77/3 77/17 80/15 112/4 112/9
	<b>challenging</b> [1] 16/24	<b>Chinese</b> [1] 81/9
	<b>chance</b> [5] 49/9 65/3 166/23 196/19 196/20	<b>chord</b> [1] 71/14
	<b>chances</b> [1] 61/24	<b>CHRISTOPHER</b> [3] 3/5 13/1 13/20
	<b>change</b> [6] 27/24 28/9 28/25 88/13 129/19 134/12	<b>circular</b> [1] 49/24
	<b>changed</b> [1] 135/8	<b>circumstances</b> [2] 37/17 85/19
		<b>Citation</b> [1] 172/9
		<b>cited</b> [1] 58/10
		<b>cities</b> [1] 46/11

<b>C</b>		
<b>City</b> [3] 2/5 177/24 180/18	179/25 180/4 181/13 183/7	<b>complaint</b> [1] 176/19
<b>civil</b> [5] 12/2 25/11 89/20	185/8 187/11 192/1 195/17	<b>complete</b> [41] 7/20 15/23
89/22 199/7	<b>comes</b> [8] 7/16 31/15	43/2 59/11 59/23 62/21
<b>clarification</b> [3] 96/12	47/16 65/14 65/24 128/9	62/22 85/2 96/17 104/5
115/15 158/25	149/7 199/3	104/15 104/18 105/1 105/15
<b>clarify</b> [4] 168/10 168/13	<b>comfortable</b> [1] 114/7	123/9 123/15 123/20
190/6 193/3	<b>coming</b> [6] 57/8 72/11	123/23 123/23 123/25
<b>clarity</b> [1] 6/22	80/13 101/8 139/24 198/12	124/4 124/5 124/8 124/9
<b>classroom</b> [3] 50/16 64/19	<b>command</b> [1] 189/6	131/20 132/6 132/8 134/3
166/20	<b>Commerce</b> [1] 1/18	138/9 138/12 142/24 143/8
<b>clean</b> [2] 41/3 41/8	<b>commercial</b> [6] 38/3 38/6	143/12 143/16 144/13
<b>clean-up</b> [2] 41/3 41/8	137/12 144/23 145/24	157/17 184/2 184/5 184/23
<b>cleanup</b> [1] 188/3	174/6	184/25 185/3
<b>clear</b> [12] 34/22 45/5	<b>commit</b> [2] 12/7 12/7	<b>completed</b> [4] 40/23 146/2
62/8 71/2 71/6 95/4	<b>commitment</b> [1] 88/7	146/5 177/2
100/12 118/17 139/22	<b>committee</b> [20] 3/19 17/8	<b>completely</b> [2] 59/23 85/1
150/21 151/16 191/24	17/18 18/8 24/22 72/10	<b>completeness</b> [1] 108/1
<b>clearly</b> [1] 191/23	72/12 72/18 73/8 74/23	<b>completion</b> [2] 44/15
<b>client</b> [7] 9/3 10/19 12/6	75/16 77/1 78/15 79/6	188/24
12/8 12/12 12/16 12/19	82/2 82/4 94/14 106/13	<b>complex</b> [2] 136/13 137/12
<b>CLIFFORD</b> [1] 2/10	106/25 179/3	<b>Compliance</b> [1] 22/23
<b>climb</b> [1] 40/3	<b>committee's</b> [1] 106/19	<b>complicated</b> [4] 96/5 103/8
<b>close</b> [1] 91/8	<b>common</b> [1] 161/18	136/13 144/16
<b>closely</b> [1] 30/25	<b>commonly</b> [1] 37/25	<b>complied</b> [2] 86/1 87/11
<b>closer</b> [1] 71/16	<b>communicated</b> [1] 92/7	<b>comply</b> [2] 178/11 200/13
<b>cockpit</b> [3] 64/20 133/12	<b>communicating</b> [1] 90/15	<b>computer</b> [4] 48/23 50/16
164/4	<b>communication</b> [2] 131/4	81/14 88/6
<b>Code</b> [2] 20/18 21/20	132/10	<b>computer-based</b> [3] 48/23
<b>codes</b> [1] 95/15	<b>communications</b> [4] 19/4	81/14 88/6
<b>coffee</b> [1] 163/21	20/4 56/13 175/14	<b>concede</b> [1] 154/17
<b>colleague</b> [3] 78/4 78/16	<b>Community</b> [1] 89/8	<b>conceivable</b> [9] 162/2
132/23	<b>companies</b> [1] 183/18	162/3 162/4 162/5 162/10
<b>colleagues</b> [2] 77/3 93/8	<b>company</b> [25] 1/8 2/16 4/5	162/11 192/4 192/5 192/6
<b>collected</b> [2] 18/8 178/23	4/23 7/5 10/7 11/23 23/8	<b>concern</b> [1] 101/25
<b>collecting</b> [1] 17/20	30/10 37/19 37/22 37/24	<b>concerned</b> [1] 142/13
<b>college</b> [3] 2/3 171/23	56/23 68/1 78/22 80/5	<b>concerning</b> [3] 35/23
172/16	80/8 80/11 108/12 108/16	103/15 103/17
<b>come</b> [22] 13/6 21/3 34/11	111/8 115/5 116/18 124/19	<b>concerns</b> [1] 102/24
38/18 57/3 57/4 88/15	127/12	<b>concession</b> [1] 88/15
104/23 133/3 133/5 134/8	<b>comparable</b> [1] 198/11	<b>conclude</b> [2] 11/9 11/11
152/12 171/11 175/11	<b>competency</b> [1] 148/6	<b>concluded</b> [1] 63/14
	<b>compile</b> [1] 27/18	<b>concludes</b> [2] 72/18 93/13

<b>C</b>		
<b>conclusion</b> [11] 7/23 26/14 60/8 61/4 61/15 61/20 62/1 63/6 74/24 75/12 84/19 <b>conclusions</b> [8] 61/3 69/23 70/13 77/24 77/25 81/20 83/24 173/5 <b>condition</b> [2] 160/2 160/14 <b>conditions</b> [1] 165/4 <b>conduct</b> [4] 29/10 117/24 176/5 179/12 <b>conducted</b> [3] 73/12 143/25 156/8 <b>conducts</b> [1] 178/2 <b>confer</b> [2] 115/25 186/13 <b>conference</b> [2] 195/22 200/14 <b>confidence</b> [2] 29/16 181/22 <b>confirming</b> [2] 83/24 170/13 <b>confirms</b> [1] 83/25 <b>confusing</b> [1] 168/8 <b>confusingly</b> [1] 14/1 <b>Congress</b> [2] 17/15 178/25 <b>connected</b> [2] 17/20 172/3 <b>connection</b> [9] 25/23 75/2 130/21 174/10 176/23 184/17 185/8 185/9 189/9 <b>conscious</b> [1] 63/3 <b>consequence</b> [1] 174/15 <b>consequences</b> [4] 61/24 74/18 183/7 194/7 <b>Consequently</b> [1] 34/17 <b>consider</b> [3] 11/9 103/22 194/17 <b>considerate</b> [1] 96/22 <b>consideration</b> [2] 58/24 191/8 <b>considerations</b> [1] 105/14 <b>considered</b> [5] 20/17 29/3	29/15 59/1 60/20 <b>considering</b> [1] 196/13 <b>consist</b> [1] 27/24 <b>consistent</b> [12] 26/5 26/7 42/8 51/3 51/5 73/16 78/10 79/1 79/14 92/12 117/16 125/6 <b>conspiracy</b> [5] 84/16 85/24 86/20 87/10 127/15 <b>conspired</b> [1] 130/5 <b>constructed</b> [1] 181/4 <b>consult</b> [2] 25/3 116/7 <b>consulting</b> [2] 43/10 101/20 <b>Cont'd</b> [1] 3/8 <b>contact</b> [1] 91/8 <b>contained</b> [3] 26/17 100/18 100/21 <b>contains</b> [1] 73/24 <b>contention</b> [1] 138/6 <b>contents</b> [1] 55/17 <b>context</b> [6] 36/2 39/18 69/12 76/17 77/19 81/10 <b>continue</b> [1] 180/12 <b>continued</b> [7] 22/3 22/5 89/7 116/12 126/25 187/18 188/15 <b>continuing</b> [1] 130/8 <b>contract</b> [2] 147/8 180/17 <b>contracts</b> [2] 176/9 177/17 <b>contradicted</b> [1] 107/14 <b>contradicting</b> [1] 83/24 <b>contrary</b> [2] 87/9 130/16 <b>contributed</b> [3] 137/5 170/21 179/20 <b>contributing</b> [7] 140/13 140/20 141/7 153/24 153/25 165/15 168/2 <b>control</b> [5] 49/19 65/6 174/16 188/25 195/4 <b>controlled</b> [1] 49/19 <b>controllers</b> [1] 177/21 <b>convenience</b> [1] 54/22	<b>convenient</b> [2] 54/23 142/15 <b>convention</b> [1] 55/7 <b>conversion</b> [2] 44/23 45/3 <b>converted</b> [1] 44/21 <b>conveyed</b> [1] 27/9 <b>coordinate</b> [1] 44/18 <b>coordination</b> [2] 74/20 194/9 <b>copies</b> [1] 53/3 <b>copy</b> [3] 21/10 38/8 53/2 <b>corner</b> [2] 80/6 80/9 <b>corporate</b> [2] 172/17 173/4 <b>corporation</b> [3] 30/11 30/14 86/1 <b>correct</b> [189] 23/1 51/22 63/1 93/24 95/22 96/2 96/8 96/19 96/20 96/21 96/23 97/3 97/9 97/10 97/13 99/3 99/4 100/19 100/20 100/23 100/24 101/2 101/6 101/7 104/10 106/10 106/11 112/11 112/16 112/17 113/2 114/18 115/1 115/9 115/12 115/21 115/22 117/9 118/1 118/4 118/15 118/22 119/4 120/5 123/1 125/7 125/8 125/14 125/21 125/24 125/25 126/21 128/14 131/22 131/23 135/1 135/2 135/5 135/15 136/1 136/5 136/6 136/9 136/10 136/19 137/22 138/25 140/8 141/1 141/13 141/16 141/21 141/22 142/1 143/17 143/20 144/24 145/23 145/25 146/1 146/4 146/7 146/12 146/19 146/23 146/24 147/2 148/1 148/7 148/8 148/10 148/17 148/19 148/23 148/24 149/1 149/2 149/5 149/8

<b>C</b>		
<b>correct...</b> [90] 149/9 149/12 149/20 150/4 150/9 151/20 152/1 152/5 152/6 152/10 152/16 152/25 153/1 153/3 153/4 153/6 153/18 154/21 154/24 154/25 155/4 155/12 155/13 155/15 155/16 155/20 155/24 156/13 157/9 157/10 157/14 157/22 157/23 158/1 158/7 158/13 158/19 158/20 158/23 159/18 159/19 160/4 160/10 160/11 160/16 160/20 160/21 161/6 161/10 161/11 161/14 161/15 161/21 162/2 162/4 162/12 162/13 162/16 162/24 162/25 163/12 164/10 164/14 165/1 165/6 165/10 167/2 167/6 168/1 168/23 169/1 169/2 169/5 169/6 169/9 169/10 169/13 169/14 170/7 170/20 170/25 172/18 173/16 175/4 180/11 183/4 183/5 187/7 190/3 200/5 <b>correction</b> [3] 23/24 59/25 87/19 <b>corrective</b> [1] 60/5 <b>correctly</b> [7] 18/5 54/16 70/8 166/24 172/15 175/1 188/17 <b>CORY</b> [3] 1/19 5/7 93/20 <b>cost</b> [3] 50/12 50/16 50/25 <b>could</b> [113] 5/15 6/3 6/22 6/23 8/5 9/10 9/17 9/23 13/18 14/7 14/24 15/3 15/6 16/25 17/12 18/24 19/24 21/22 22/7 24/16 27/8 29/1 30/20 30/21 33/1	34/2 35/7 35/9 35/19 38/5 38/5 39/14 44/20 45/19 46/14 47/15 48/13 53/22 58/4 58/9 70/20 71/8 71/22 84/24 89/15 90/19 90/24 96/11 97/3 100/16 102/16 103/23 104/16 104/19 104/20 105/6 105/10 105/16 107/6 111/22 115/14 115/25 119/22 119/23 120/24 121/11 121/18 130/19 132/3 134/21 135/8 141/25 145/2 157/21 158/22 158/25 159/8 160/19 164/22 168/3 168/12 169/19 169/22 169/25 170/3 172/19 173/17 174/7 174/9 175/5 176/14 177/12 179/5 179/25 180/25 182/12 182/13 183/12 183/15 184/4 184/18 185/25 187/15 191/4 192/17 193/18 193/20 193/21 195/2 195/3 197/7 198/6 198/22 <b>couldn't</b> [7] 12/7 102/4 113/10 124/8 150/5 152/18 199/6 <b>counsel</b> [5] 53/3 82/5 82/5 89/4 186/13 <b>counter</b> [1] 56/18 <b>counterpart</b> [1] 89/23 <b>counterparts</b> [1] 91/8 <b>countries</b> [20] 29/5 29/19 29/21 31/18 52/14 52/17 52/17 53/19 83/18 83/23 89/23 89/25 98/23 100/12 100/13 100/13 101/4 154/23 155/2 175/11 <b>country</b> [7] 29/1 29/24 31/7 42/21 44/3 99/9 99/17	<b>couple</b> [11] 58/16 60/14 63/23 65/23 68/24 76/7 134/15 180/2 183/1 185/21 191/16 <b>course</b> [22] 6/1 7/15 19/7 19/12 19/15 20/22 30/14 34/23 36/13 43/9 45/13 49/17 49/17 56/14 57/6 73/24 107/4 138/3 138/5 186/3 199/17 199/17 <b>court</b> [35] 1/1 1/12 6/1 7/9 8/23 9/16 10/1 10/11 12/12 13/25 18/24 21/22 24/16 25/7 26/8 47/15 48/17 53/2 71/3 82/2 91/22 91/23 97/21 101/8 144/3 144/7 151/17 170/23 173/17 194/17 196/4 197/6 199/11 200/13 200/18 <b>Court's</b> [11] 4/13 9/23 21/15 52/25 66/19 72/6 74/7 80/1 89/3 91/20 197/1 <b>courtesy</b> [1] 53/2 <b>courtroom</b> [1] 139/12 <b>cover</b> [5] 39/24 39/24 54/25 72/9 91/18 <b>covered</b> [4] 19/3 23/15 23/16 66/2 <b>COVID</b> [1] 200/8 <b>COVID-19</b> [1] 200/8 <b>cr</b> [2] 1/5 4/5 <b>crash</b> [84] 4/15 7/13 24/8 41/12 53/10 53/14 54/8 60/6 66/2 66/3 66/13 66/18 67/3 67/8 67/10 67/24 68/3 68/9 79/7 95/8 100/22 100/23 100/25 101/1 101/6 113/25 114/20 125/19 125/19 125/22 126/13 126/13 126/25 127/11 129/4

<b>C</b>	<p><b>crash...</b> [49] 129/12 129/17 129/21 130/6 131/8 131/22 131/25 132/2 132/21 132/23 133/2 134/16 136/17 137/12 137/14 137/18 137/21 140/9 140/11 140/23 141/7 144/6 144/10 144/18 144/21 145/3 158/16 158/18 158/22 159/7 159/11 160/7 161/4 161/7 162/15 162/15 162/18 162/21 162/22 167/5 168/1 170/20 170/24 185/19 187/3 188/6 188/7 188/18 190/5</p> <p><b>crashed</b> [4] 20/12 53/8 58/20 66/24</p> <p><b>crashes</b> [30] 18/8 24/18 32/7 42/24 51/12 75/8 79/15 88/1 88/3 90/16 108/5 112/23 113/13 113/23 117/2 117/3 136/13 137/9 137/10 138/22 139/4 140/14 143/24 144/16 144/21 144/23 170/21 188/22 191/17 195/21</p> <p><b>crashing</b> [2] 53/13 137/25</p> <p><b>create</b> [4] 34/13 37/19 86/21 182/1</p> <p><b>created</b> [2] 84/17 138/21</p> <p><b>credence</b> [2] 52/14 52/17</p> <p><b>credentials</b> [1] 106/10</p> <p><b>credibility</b> [1] 106/10</p> <p><b>crew</b> [46] 16/19 20/3 34/18 36/24 38/15 39/5 48/7 49/6 53/9 55/19 56/15 56/19 59/3 59/4 59/10 59/14 59/22 60/3 60/4 60/16 60/18 61/7 61/10 61/21 62/4 64/15</p>	<p>65/1 66/6 67/1 71/20 84/12 84/17 84/21 84/25 85/4 85/12 86/21 86/24 87/20 88/16 148/5 159/17 159/25 163/22 164/3 189/21</p> <p><b>crews</b> [8] 35/1 40/3 70/5 70/18 158/5 165/3 165/8 189/20</p> <p><b>crews'</b> [2] 153/11 153/17</p> <p><b>crime</b> [6] 10/6 10/22 10/25 11/24 127/14 138/4</p> <p><b>criminal</b> [2] 1/20 199/5</p> <p><b>critical</b> [12] 16/12 32/10 34/15 39/8 41/3 41/7 50/6 63/3 63/10 103/20 103/23 186/18</p> <p><b>critically</b> [1] 185/7</p> <p><b>cross</b> [19] 3/7 3/8 3/9 5/20 7/7 7/22 9/2 9/19 9/21 10/2 11/21 15/5 93/16 110/6 116/12 145/14 194/15 194/16 196/13</p> <p><b>cross-examination</b> [9] 3/7 3/8 3/9 9/19 9/21 93/16 116/12 145/14 196/13</p> <p><b>cross-examine</b> [7] 5/20 7/7 7/22 9/2 11/21 15/5 110/6</p> <p><b>cu</b> [1] 166/1</p> <p><b>culmination</b> [1] 183/25</p> <p><b>curious</b> [1] 151/2</p> <p><b>currency</b> [2] 45/25 55/20</p> <p><b>current</b> [3] 23/9 24/6 73/13</p> <p><b>Currently</b> [1] 180/20</p> <p><b>curriculum</b> [5] 173/9 181/8 181/21 182/1 182/17</p> <p><b>curriculums</b> [1] 183/22</p> <p><b>customers</b> [2] 28/21 30/16</p> <p><b>Customs</b> [1] 179/23</p> <p><b>CV</b> [3] 14/14 19/8 173/13</p>	<p><b>CVRA</b> [7] 9/8 10/5 10/6 10/13 10/23 11/1 11/23</p> <p><b>D</b></p> <p><b>D.C</b> [2] 1/21 2/21</p> <p><b>Dallas</b> [3] 1/18 2/14 43/21</p> <p><b>damage</b> [1] 55/18</p> <p><b>dangerous</b> [1] 65/10</p> <p><b>data</b> [14] 63/10 63/12 105/1 105/15 107/14 107/20 138/9 138/12 142/24 143/8 143/12 143/16 147/5 184/8</p> <p><b>dataset</b> [24] 7/20 15/23 43/2 96/17 104/5 104/15 104/18 105/25 123/10 123/16 123/23 124/2 124/5 124/8 124/9 131/20 132/6 132/8 157/17 184/3 184/5 184/23 184/25 185/4</p> <p><b>date</b> [8] 24/8 52/24 80/16 80/16 91/22 186/10 186/11 195/10</p> <p><b>dated</b> [2] 89/11 91/21</p> <p><b>dates</b> [1] 195/15</p> <p><b>Daubert</b> [6] 8/10 9/18 9/24 10/1 194/17 196/5</p> <p><b>David</b> [2] 136/20 136/21</p> <p><b>day</b> [15] 20/12 156/11 188/17 197/4 197/7 197/8 197/15 197/16 197/19 197/20 197/21 197/22 199/11 199/16 200/15</p> <p><b>days</b> [3] 55/22 134/9 197/17</p> <p><b>deal</b> [6] 15/6 62/24 63/17 75/24 153/12 153/18</p> <p><b>dealing</b> [4] 33/10 54/5 71/10 113/7</p> <p><b>deals</b> [1] 154/3</p> <p><b>death</b> [5] 35/7 39/12 62/9 85/6 190/12</p> <p><b>decades</b> [1] 36/5</p>
----------	--	--	--

<b>D</b>	<b>deceive</b> [1] 63/3 <b>December</b> [1] 78/16 <b>December 2017</b> [1] 78/16 <b>decide</b> [1] 186/1 <b>decided</b> [1] 191/13 <b>deciding</b> [1] 191/2 <b>decision</b> [18] 7/21 18/10 95/20 96/1 97/2 97/12 104/6 104/15 105/2 105/8 105/16 130/12 134/5 142/25 143/10 152/8 164/4 192/23 <b>decision-making</b> [3] 97/2 97/12 164/4 <b>decisions</b> [6] 30/4 98/21 122/11 135/12 149/20 155/19 <b>deep</b> [1] 35/2 <b>defendant</b> [3] 1/9 7/6 12/3 <b>defendants</b> [1] 12/2 <b>defer</b> [4] 7/1 7/5 14/21 83/18 <b>Deferred</b> [4] 111/19 116/17 117/12 120/16 <b>deferring</b> [1] 83/23 <b>definitely</b> [2] 105/7 105/18 <b>definition</b> [9] 9/8 10/22 10/25 11/5 11/5 11/9 11/10 48/25 192/23 <b>definitive</b> [1] 192/1 <b>defraud</b> [3] 85/24 87/10 127/15 <b>degree</b> [17] 15/22 16/4 16/11 16/17 86/5 86/8 87/15 87/18 87/19 120/25 121/11 121/18 141/25 142/4 154/9 171/24 192/10 <b>delegated</b> [1] 174/1 <b>delete</b> [1] 33/23 <b>deleted</b> [1] 34/5 <b>deleting</b> [1] 34/3	<b>demanded</b> [1] 112/20 <b>Democratic</b> [2] 19/18 67/18 <b>denied</b> [1] 9/10 <b>Department</b> [11] 5/23 92/1 92/3 93/1 93/21 110/3 110/11 110/14 116/25 179/21 179/22 <b>Department's</b> [1] 116/17 <b>depend</b> [8] 16/5 25/19 27/14 133/24 149/7 154/5 167/13 167/16 <b>depending</b> [3] 6/16 35/9 46/18 <b>deprived</b> [3] 110/13 131/4 132/11 <b>depth</b> [1] 57/2 <b>descent</b> [1] 40/3 <b>describe</b> [6] 17/12 21/23 37/9 37/12 46/14 172/19 <b>described</b> [6] 20/6 54/9 102/16 146/14 160/18 178/1 <b>describes</b> [1] 14/9 <b>describing</b> [6] 24/17 30/4 46/10 47/3 47/6 79/2 <b>description</b> [1] 98/6 <b>descriptions</b> [1] 24/10 <b>design</b> [18] 17/9 72/10 72/20 94/15 112/5 112/6 112/13 112/18 112/19 112/25 113/4 113/5 113/7 121/21 140/21 141/7 189/3 189/4 <b>designated</b> [1] 46/6 <b>designed</b> [11] 99/1 101/21 101/24 102/20 103/11 104/2 119/4 124/22 137/3 141/12 143/19 <b>designing</b> [2] 101/17 149/13 <b>desk</b> [1] 57/8 <b>despite</b> [1] 107/13 <b>detail</b> [3] 25/16 37/14
----------	---	--

<b>D</b>		
<b>did...</b> [102] 68/23 69/8 69/11 69/22 69/25 70/12 70/15 70/17 70/25 74/12 74/13 75/1 75/9 75/22 76/11 79/2 79/10 85/1 85/24 86/20 87/9 88/15 88/18 88/19 88/22 94/20 94/22 95/1 95/2 95/3 95/5 95/7 95/9 95/10 95/11 95/13 95/19 97/7 97/21 99/6 100/7 100/10 101/17 101/20 106/15 106/16 106/18 107/19 111/5 111/8 115/11 122/13 123/21 124/4 125/9 125/11 125/19 125/23 127/21 129/13 129/18 131/25 134/10 135/4 135/15 136/2 136/7 144/13 145/2 147/24 148/11 148/20 152/5 153/3 155/2 155/2 162/14 166/6 166/13 167/17 170/4 170/8 170/15 175/19 176/23 177/24 178/11 179/21 179/21 179/22 179/22 179/23 179/24 180/5 180/9 180/12 185/14 186/7 188/9 188/11 193/19 194/1 <b>didn't</b> [27] 12/7 24/7 51/7 56/5 98/25 99/2 99/17 106/14 114/16 124/7 125/13 127/17 127/22 127/22 127/25 128/18 128/18 129/19 129/21 131/22 132/24 138/12 151/24 170/6 170/13 185/22 193/24 <b>didn't testify</b> [1] 170/13 <b>died</b> [3] 53/9 62/16 92/21 <b>difference</b> [5] 47/14 69/18 70/9 71/14 146/5	<b>differences</b> [36] 15/25 27/19 30/24 43/4 47/17 47/20 47/22 48/5 48/6 48/10 48/15 62/11 63/6 63/21 70/17 75/18 96/18 123/11 147/20 149/4 163/1 163/9 163/10 163/14 163/14 163/16 163/20 164/6 164/8 164/11 168/21 181/9 181/13 181/14 181/20 184/19 <b>different</b> [29] 22/14 30/24 35/2 37/3 37/5 44/21 48/18 56/7 64/14 64/14 64/15 99/11 104/9 147/12 147/14 147/15 148/21 148/22 153/20 155/7 157/13 161/23 165/17 167/11 181/5 182/2 183/17 183/18 191/8 <b>differently</b> [1] 11/4 <b>difficult</b> [2] 60/4 71/20 <b>difficulty</b> [1] 182/15 <b>dig</b> [1] 29/13 <b>digest</b> [2] 133/16 136/14 <b>diminished</b> [1] 75/19 <b>direct</b> [30] 3/6 11/24 13/15 14/7 16/25 25/22 33/18 41/22 49/1 50/19 55/4 56/15 83/4 83/11 83/16 89/15 92/2 93/14 102/2 138/7 146/14 152/11 154/22 170/6 170/14 186/22 187/14 189/12 194/3 198/24 <b>direct a</b> [1] 56/15 <b>directed</b> [1] 178/17 <b>directing</b> [1] 26/10 <b>direction</b> [3] 49/1 133/15 179/9 <b>directions</b> [1] 174/18 <b>directive</b> [11] 126/2 126/4	126/6 126/12 134/15 134/18 135/22 160/6 160/10 167/2 191/19 <b>directives</b> [1] 178/22 <b>directly</b> [15] 7/13 8/25 9/3 9/5 9/14 10/19 11/14 12/5 12/8 78/2 90/15 99/21 99/25 109/3 117/3 <b>director</b> [3] 160/13 180/2 197/11 <b>disagree</b> [5] 117/18 117/20 117/22 118/6 151/9 <b>disagreed</b> [1] 95/20 <b>disclose</b> [1] 131/3 <b>disclosed</b> [11] 86/2 87/12 115/5 115/9 115/21 124/14 124/19 124/21 150/13 150/21 158/3 <b>disclosure</b> [4] 110/8 122/6 132/9 151/3 <b>discount</b> [1] 72/2 <b>discounted</b> [1] 107/20 <b>discovered</b> [1] 63/9 <b>discovery</b> [1] 110/10 <b>discovery'</b> [1] 112/22 <b>discuss</b> [4] 64/24 80/23 166/15 171/15 <b>discussed</b> [4] 130/25 156/17 157/1 171/14 <b>discussion</b> [1] 156/24 <b>discussions</b> [1] 105/23 <b>dispute</b> [9] 6/17 6/22 7/15 7/22 15/10 90/20 140/2 158/13 165/7 <b>disputed</b> [1] 6/21 <b>disregard</b> [1] 117/5 <b>distinction</b> [3] 105/3 109/17 109/18 <b>distributed</b> [1] 159/24 <b>district</b> [7] 1/1 1/2 1/12 1/17 176/13 176/15 200/18 <b>disturbing</b> [1] 77/12

<b>D</b>		
<b>dive</b> [2] 15/4 47/11	190/24 191/2 192/9 193/3	180/24 193/10 197/6
<b>DIVISION</b> [3] 1/3 1/20	193/6 195/5 197/7 197/18	198/15
200/19	198/2 198/14 198/19 199/6	<b>doesn't</b> [5] 26/8 74/1
<b>do</b> [160] 4/6 4/8 4/18	<b>Docket</b> [1] 9/11	122/10 128/16 131/14
4/19 6/24 7/2 7/6 9/7	<b>document</b> [53] 13/22 14/3	<b>doing</b> [4] 48/9 54/9 64/12
10/3 10/10 10/22 10/25	14/5 14/8 17/12 18/24	188/22
11/4 11/8 11/10 11/11 12/15	19/18 19/24 20/10 22/20	<b>dollars</b> [6] 50/12 50/25
12/17 13/5 13/22 14/5 14/6	24/17 28/19 30/19 30/22	51/6 78/21 83/8 83/15
15/11 18/22 19/21 22/16	30/23 38/11 38/12 38/18	<b>domestic</b> [3] 16/5 25/19
23/24 23/25 25/23 31/14	38/25 49/24 58/10 72/23	154/5
32/23 32/24 37/18 40/16	73/1 73/24 80/17 82/9	<b>domino</b> [1] 144/25
41/13 45/6 45/6 54/18	82/19 82/20 83/2 83/9	<b>domino-type</b> [1] 144/25
56/10 56/16 58/4 58/4	84/2 88/18 88/25 89/1	<b>don't</b> [58] 6/16 8/10 9/17
63/13 65/17 65/17 65/18	89/1 90/6 90/19 91/19	10/10 11/5 14/25 29/11
65/19 71/24 73/14 74/10	94/7 106/23 111/12 111/16	29/12 33/6 43/15 43/25
75/3 76/6 80/8 81/2 81/7	111/21 119/24 120/13	48/16 72/13 89/1 90/8
82/8 83/20 83/23 90/10	139/14 139/21 140/2 186/11	99/15 101/1 102/7 104/21
92/10 92/11 94/6 96/4	187/17 187/20 188/21	109/18 111/15 113/15 113/19
97/25 98/14 99/5 99/10	189/24	116/1 117/17 117/18 119/5
100/13 101/5 107/8 107/22	<b>documentation</b> [6] 97/6	123/20 123/24 128/23
108/5 108/7 108/12 108/14	177/3 191/6 191/12 192/21	128/23 137/7 139/7 153/5
108/15 108/19 108/23	193/20	155/9 155/12 155/14
109/2 109/5 111/12 112/7	<b>documents</b> [34] 17/20	158/13 161/20 162/12
113/6 113/14 114/5 115/6	24/11 24/19 24/23 24/25	162/17 164/12 164/22
116/23 117/20 117/22 118/5	25/2 25/7 25/16 34/8	165/7 169/18 180/3 186/9
119/7 119/10 119/12 120/6	39/8 40/11 51/16 66/10	186/10 187/16 190/18
120/8 122/6 122/8 123/17	66/12 82/3 89/4 98/2	190/21 191/24 195/10
123/19 123/22 125/15	108/10 108/22 109/8 111/10	195/11 196/8 197/19 198/8
127/5 129/2 129/25 132/18	119/17 119/23 151/21	198/25
133/3 134/6 134/7 134/10	151/23 174/20 178/13	<b>don't part</b> [1] 10/10
136/24 137/1 147/10 153/2	185/19 191/17 191/22	<b>done</b> [26] 8/4 8/8 27/12
154/12 156/9 156/18	193/22 193/23 193/23	28/8 28/8 30/25 31/13
156/20 162/14 162/18	194/2	46/2 55/25 56/1 56/1
163/4 163/4 163/6 163/14	<b>does</b> [39] 7/6 10/8 18/5	64/21 74/10 129/5 147/4
164/3 164/24 171/2 171/10	22/8 23/12 36/17 38/2	152/7 152/19 153/23 155/1
172/2 172/10 173/25	48/14 51/8 51/9 51/21	161/20 164/22 171/11
175/10 175/12 179/25	53/25 57/10 77/10 77/23	174/19 174/19 180/15
180/4 180/19 181/1 181/10	80/13 81/10 83/18 98/17	188/17
181/10 181/18 182/21 183/6	98/17 98/19 114/1 117/3	<b>DOT</b> [3] 178/16 178/16
186/5 187/1 187/2 187/13	118/12 118/23 119/2 121/4	178/18
188/8 189/17 190/22	121/9 121/15 127/7 127/22	<b>doubt</b> [4] 101/1 101/3
	131/14 145/1 163/19 180/22	101/4 106/9

<b>D</b>	down [27] 15/10 18/18 20/16 34/17 35/25 37/16 37/21 41/4 45/1 50/16 61/10 69/5 80/21 83/6 83/13 92/3 102/20 103/24 120/25 129/20 132/4 134/21 156/15 156/21 166/4 178/4 195/8 dozen [1] 73/12 dozens [1] 75/7 DPA [13] 7/14 9/4 12/9 91/23 117/13 120/4 120/7 127/6 127/18 128/4 140/5 141/10 150/20 Dr [1] 198/23 drafting [3] 94/17 94/21 97/15 drill [1] 26/24 drugs [2] 56/18 56/18 due [2] 9/1 200/8 due-process [1] 9/1 duplicates [1] 64/12 duplicative [1] 9/21 during [20] 7/16 66/4 67/7 107/16 108/9 115/19 116/7 130/24 147/22 148/9 148/18 150/2 150/7 150/8 156/17 157/1 158/17 163/23 188/8 188/12 duties [9] 19/12 19/15 20/24 43/10 46/4 57/7 146/19 148/16 179/2	158/12 171/14 earliest [1] 80/23 EASA [2] 81/2 81/2 easily [1] 142/11 edification [1] 180/1 educate [1] 34/25 educated [5] 96/7 96/9 96/21 98/21 114/6 education [2] 151/20 173/6 effect [15] 10/7 24/8 34/13 35/25 38/22 41/20 52/1 52/5 76/8 76/12 137/24 144/25 183/10 183/11 190/2 effective [2] 56/25 56/25 effectively [1] 110/16 effects [2] 51/25 52/4 effort [2] 37/3 63/3 eight [2] 44/25 180/6 Eighty [1] 111/24 Eighty-six [1] 111/24 either [10] 21/5 27/13 29/25 33/4 45/23 100/7 131/13 138/22 144/10 147/1 electric [1] 61/6 elements [2] 12/10 12/13 eliminates [1] 48/10 ELISSA [2] 2/17 5/5 ELLIS [3] 2/20 4/24 5/3 else [7] 4/8 4/21 31/5 95/20 127/7 171/7 195/13 email [7] 18/9 50/22 81/24 82/6 83/23 142/7 142/17 Email..... .....82 [2] 3/20 3/21 emails [6] 18/7 18/14 77/17 79/20 155/18 155/18 emergencies [2] 40/15 40/18 emergency [27] 39/5 39/7 39/16 39/25 40/12 40/13 40/15 40/25 41/9 59/25	65/15 75/25 85/16 87/4 87/21 126/2 126/3 126/6 134/14 134/18 135/22 153/13 153/18 160/6 166/24 191/18 191/19 emphasis [1] 163/24 employee [60] 50/22 51/9 83/7 83/14 117/25 117/25 118/3 118/8 118/13 118/14 119/3 119/8 120/18 120/24 121/5 121/10 121/16 123/3 123/15 124/4 124/7 124/24 126/21 127/13 129/10 130/4 130/22 131/3 134/25 136/4 140/6 141/11 141/15 141/19 141/24 142/3 142/23 143/7 143/16 147/7 151/5 151/5 157/11 157/11 157/19 157/19 158/3 158/3 164/18 164/18 167/23 167/23 168/15 168/15 169/19 169/19 169/25 169/25 184/12 184/13 employees [5] 73/13 92/7 123/3 138/20 184/14 en [2] 175/8 175/14 en-route [2] 175/8 175/14 encompass [1] 142/11 end [11] 8/16 9/24 10/2 57/3 61/2 75/7 108/4 171/10 193/17 195/10 196/7 endeavors [1] 36/15 Enforcement [1] 22/23 engage [2] 85/24 87/9 engaged [2] 102/21 137/20 engine [4] 40/6 41/4 57/14 133/9 engineer [4] 101/14 101/15 112/4 112/9 engineered [3] 101/21 101/25 102/8 engineering [6] 101/17
<b>E</b>	each [9] 35/1 36/6 45/2 55/19 93/23 100/18 137/8 167/16 177/8 earlier [15] 47/13 47/17 53/24 57/6 58/10 70/6 75/15 81/24 82/3 113/9 117/15 125/12 135/12	..... .....82 [2] 3/20 3/21 emails [6] 18/7 18/14 77/17 79/20 155/18 155/18 emergencies [2] 40/15 40/18 emergency [27] 39/5 39/7 39/16 39/25 40/12 40/13 40/15 40/25 41/9 59/25	

<b>E</b>		
<b>engineering...</b> [5] 113/1 121/21 139/20 140/7 141/7	66/3 66/14 66/18 66/23 67/2 67/10 67/23 67/24 69/3 70/1 70/8 70/22 86/15 86/19 88/16 90/2 90/12 90/13 95/8 99/24 100/22 130/20 140/10 140/23 153/10 153/22 154/14 154/15 155/6 159/6 159/16 160/7 161/3 161/7 162/15 162/18 162/22 168/1 168/16 187/3 188/7 188/17 193/14	<b>every</b> [6] 8/23 16/19 16/19 16/21 55/14 78/21 <b>everybody</b> [6] 28/22 32/11 34/18 178/21 179/23 185/14
<b>engineers</b> [1] 141/12		<b>everyone</b> [2] 4/21 185/13
<b>enhancements</b> [3] 188/25 189/5 189/6		<b>everything</b> [4] 26/9 138/16 172/21 196/22
<b>enough</b> [2] 102/7 134/10		<b>evidence</b> [18] 11/16 13/13 13/14 57/20 57/22 68/21
<b>ensure</b> [9] 22/17 28/5 41/1 44/14 92/8 92/19 178/10 178/21 181/16		74/5 82/17 82/24 91/5 93/3 94/5 107/6 128/9 135/7 140/12 145/11 188/14
<b>ensured</b> [1] 177/1		<b>EVIDENTIARY</b> [1] 1/11
<b>ensuring</b> [2] 76/10 148/5		<b>exact</b> [3] 51/7 111/15 126/15
<b>enter</b> [1] 170/4		<b>exactly</b> [5] 7/15 25/10 44/1 71/21 130/1
<b>entered</b> [1] 188/14		<b>examination</b> [20] 3/6 3/7 3/8 3/9 3/10 9/19 9/21
<b>entire</b> [1] 117/1		13/15 93/14 93/16 116/12 145/14 146/14 154/22
<b>entirely</b> [1] 139/2		170/7 171/17 186/22 194/4 196/13 198/24
<b>entitled</b> [4] 14/9 17/2 19/18 200/6		<b>examine</b> [7] 5/20 7/7 7/22 9/2 11/21 15/5 110/6
<b>equipment</b> [1] 37/2		<b>example</b> [10] 18/12 24/16 33/9 148/25 150/5 152/2 154/13 165/16 182/12
<b>equipped</b> [1] 75/24		186/21
<b>equivalent</b> [1] 81/8		<b>except</b> [1] 83/18
<b>ERIN</b> [2] 2/7 4/10		<b>excess</b> [1] 172/14
<b>erroneous</b> [5] 34/11 59/16 109/24 114/20 157/9		<b>exchange</b> [2] 78/3 78/17
<b>especially</b> [4] 17/17 34/18 44/19 167/18		<b>excuse</b> [3] 56/20 56/21 85/3
<b>essentially</b> [3] 102/19 114/16 120/25		<b>execute</b> [1] 64/22
<b>essentials</b> [2] 37/21 39/24		<b>executed</b> [1] 57/1
<b>establish</b> [10] 5/22 10/11 10/13 10/14 10/14 12/11 12/13 12/18 12/19 82/12		<b>exhibit</b> [66] 3/16 3/17 3/18 3/19 3/20 3/21 3/22
<b>established</b> [1] 6/9		3/23 3/24 3/25 13/9 13/12
<b>estimate</b> [2] 84/7 188/2		13/14 13/22 13/23 13/24
<b>estimated</b> [1] 73/10		14/1 54/14 57/20 57/22
<b>estimation</b> [1] 68/11		
<b>ET</b> [1] 69/5		
<b>ET-302</b> [1] 69/5		
<b>Ethiopia</b> [4] 19/19 66/25 67/18 69/18		
<b>Ethiopian</b> [49] 3/18 19/21 20/7 20/11 24/20 33/16		

**E**

**exhibit... [46]** 66/20  
68/17 68/21 72/8 73/21  
74/3 74/5 79/22 79/23  
79/24 79/25 80/4 80/5  
80/8 82/8 82/16 82/17  
82/23 82/24 90/21 91/12  
91/15 91/20 91/21 92/25  
93/3 93/10 94/5 94/8  
94/9 106/24 106/25 107/7  
111/23 140/12 140/16 141/1  
155/17 155/18 155/25  
156/5 159/21 160/23  
187/15 187/16 188/13  
**Exhibit 1 [6]** 13/9 13/12  
13/22 14/1 94/5 94/9  
**Exhibit 10 [3]** 91/20  
92/25 93/10  
**Exhibit 2 [10]** 13/23 13/24  
54/14 57/20 140/12 140/16  
155/25 156/5 159/21  
160/23  
**Exhibit 3 [3]** 66/20 68/17  
141/1  
**Exhibit 4 [6]** 72/8 73/21  
74/3 106/24 106/25 107/7  
**Exhibit 5 [7]** 79/22 79/23  
79/24 80/8 82/8 82/16  
155/17  
**Exhibit 6 [2]** 79/25 82/23  
**Exhibit 7 [2]** 90/21 187/16  
**Exhibit 8 [1]** 91/12  
**EXHIBITS [3]** 3/15 88/25  
91/5  
**exist [3]** 47/20 163/14  
163/14  
**existed [2]** 24/18 32/17  
**existing [7]** 27/14 115/12  
160/1 160/13 161/10 165/17  
167/11  
**expanded [13]** 118/20  
125/2 126/14 126/18 132/1

135/25 150/22 157/21  
158/19 164/17 169/21  
170/2 185/10  
**expansion [4]** 123/6 126/16  
161/24 168/21  
**expect [1]** 65/16  
**expecting [2]** 31/20 52/18  
**expedite [3]** 5/17 6/10  
6/23  
**expensive [1]** 50/8  
**experience [17]** 10/9  
29/25 43/16 43/17 55/21  
95/19 103/9 127/21 137/13  
144/20 144/22 151/20  
166/2 166/16 182/22  
183/17 183/22  
**experienced [5]** 65/20  
114/20 160/3 160/15  
160/24  
**experiences [2]** 173/6  
183/25  
**experiencing [1]** 166/3  
**experimentation [1]**  
177/25  
**expert [39]** 3/16 6/19 8/5  
9/17 13/10 36/4 68/13  
73/1 73/2 73/4 73/25  
81/19 85/22 86/3 87/7  
87/13 94/10 96/16 103/19  
105/4 123/8 125/9 137/23  
143/23 144/2 144/6 146/11  
146/13 146/21 151/17  
167/19 170/19 170/23  
172/22 183/2 183/3 190/16  
190/20 194/18  
**expert's [1]** 130/16  
**expertise [3]** 101/20 153/5  
193/1  
**experts [4]** 7/12 25/2  
47/7 90/20  
**explain [13]** 27/8 34/2  
35/19 38/5 44/1 47/15

58/3 174/9 175/5 179/5  
183/12 184/4 192/17  
**explaining [2]** 105/9 170/16  
**explanation [1]** 132/15  
**exposed [3]** 43/11 61/17  
183/17  
**extended [1]** 104/11  
**extending [1]** 35/25  
**extensive [1]** 6/18  
**extent [5]** 56/7 127/10  
129/8 130/2 131/13  
**extra [1]** 21/10  
**extreme [1]** 61/9

---

**F**

**FAA [184]** 3/22 3/23 3/24  
7/20 8/2 8/3 8/7 16/6  
19/9 20/23 22/14 22/22  
25/20 26/15 27/12 28/2  
28/20 28/23 29/3 29/5  
29/14 29/22 30/1 30/5  
31/20 31/23 31/25 33/22  
33/23 35/15 36/5 36/14  
36/22 37/6 38/21 40/9  
41/18 43/10 44/2 46/5  
46/6 47/19 49/21 50/2  
51/13 51/21 51/25 52/12  
52/13 52/20 56/15 57/7  
62/17 63/16 67/6 73/11  
73/13 77/2 80/24 81/8  
83/17 83/18 83/23 85/25  
86/2 86/3 87/10 87/12  
87/13 88/19 89/13 89/16  
89/23 89/24 90/14 90/19  
91/7 92/7 95/15 95/16  
95/19 95/24 96/4 98/25  
99/2 99/11 99/19 103/20  
107/19 121/7 121/12 122/5  
122/10 122/11 122/13  
125/15 125/19 130/23  
130/24 131/4 135/7 138/20  
138/24 146/15 146/19  
147/3 147/7 147/8 147/11

<b>F</b>		
<b>FAA...</b> [75] 147/17 147/19 147/22 148/9 148/15 148/18 149/23 150/16 150/17 150/23 151/6 154/5 154/24 155/7 155/10 155/12 157/24 158/16 158/18 160/5 161/4 161/8 161/20 162/22 164/15 169/4 173/15 173/18 174/1 174/11 174/12 174/15 174/19 174/22 175/3 175/6 175/22 176/13 177/4 177/10 177/13 178/11 179/6 180/8 180/10 180/12 180/15 180/17 180/25 181/21 182/9 182/18 184/13 184/15 184/16 184/17 184/18 184/24 185/2 185/7 185/22 186/1 186/7 188/7 188/9 188/21 188/24 189/3 190/9 191/2 192/5 192/16 192/18 193/2 198/13	<b>factor</b> [6] 59/1 75/22 77/10 165/15 168/2 168/4 <b>factors</b> [6] 140/13 140/20 144/12 153/24 153/25 166/3 <b>facts</b> [92] 26/7 26/10 26/11 26/22 33/20 35/10 35/13 38/20 41/23 41/24 42/6 42/9 42/12 48/17 50/20 53/6 66/23 67/5 67/6 68/24 85/22 87/7 111/17 111/20 116/17 117/12 117/17 117/19 117/23 118/9 118/12 118/17 118/23 119/2 119/7 119/15 119/19 120/1 120/9 120/17 120/23 121/2 121/4 121/9 121/15 122/24 123/2 123/14 123/19 125/7 126/24 127/3 127/6 127/18 128/3 128/4 128/5 128/10 130/9 130/15 131/11 131/16 132/19 135/7 136/4 140/4 140/5 141/10 141/14 141/19 141/24 142/2 142/7 142/12 143/4 143/6 143/14 150/12 150/14 150/19 150/20 151/1 151/2 151/3 151/4 157/20 158/10 158/13 158/16 184/10 184/12 190/8 <b>factually</b> [1] 196/15 <b>failed</b> [1] 131/3 <b>failure</b> [4] 70/24 71/7 71/10 139/19 <b>fair</b> [12] 31/18 41/19 42/14 50/7 62/25 63/2 98/4 147/5 147/15 147/20 186/17 187/7 <b>fairly</b> [2] 37/13 96/24 <b>false</b> [4] 35/17 35/20 42/4 71/19 <b>falsely</b> [1] 107/21 <b>familiar</b> [32] 26/4 26/22	30/10 39/17 42/6 43/6 48/12 48/18 48/20 51/1 53/10 60/22 62/1 67/2 71/3 74/12 78/24 102/15 102/18 102/21 103/10 114/1 116/16 116/20 126/3 136/20 143/18 152/15 164/24 164/25 184/11 184/20 <b>familiarization</b> [5] 149/22 150/7 156/18 156/23 157/2 <b>familiarize</b> [1] 70/10 <b>families</b> [7] 5/22 6/2 6/12 12/25 128/11 195/16 196/2 <b>families'</b> [30] 13/9 13/22 54/13 57/20 66/20 68/17 72/8 73/21 79/22 79/23 79/24 79/24 80/4 80/7 82/5 82/7 88/24 90/21 91/20 91/21 92/25 94/5 94/8 106/25 107/7 140/12 140/16 141/1 187/15 187/16 <b>family</b> [2] 195/20 195/21 <b>far</b> [5] 43/23 44/5 102/11 174/5 175/24 <b>fast</b> [1] 198/16 <b>fatal</b> [2] 79/6 153/10 <b>fatalities</b> [1] 56/15 <b>fault</b> [2] 71/24 179/19 <b>faults</b> [2] 39/2 64/14 <b>faulty</b> [5] 56/5 107/10 141/6 153/11 153/16 <b>FCOM</b> [2] 66/5 191/18 <b>FCRR</b> [2] 200/4 200/17 <b>federal</b> [12] 8/7 19/18 20/23 21/20 22/12 22/22 38/13 67/17 95/24 144/3 144/6 178/12 <b>feed</b> [1] 133/25 <b>feeding</b> [1] 120/18 <b>feel</b> [10] 15/1 33/3 49/8 65/6 65/6 65/7 78/18

**F**

**feel...** [3] 114/7 162/17  
166/21  
**feeling** [1] 75/12  
**feels** [1] 71/18  
**fees** [1] 200/12  
**few** [4] 32/5 94/12 134/9  
139/11  
**Fifty** [1] 90/5  
**Fifty-nine** [1] 90/5  
**figure** [4] 65/18 76/6 78/6  
92/16  
**figured** [1] 195/25  
**figuring** [2] 53/17 130/22  
**filed** [4] 10/17 12/5 13/11  
91/23  
**fill** [1] 174/24  
**filled** [1] 130/12  
**final** [12] 3/19 17/8 18/20  
35/15 59/22 72/10 94/14  
94/24 106/25 133/5  
170/18 170/22  
**finally** [2] 133/5 186/11  
**financial** [1] 30/1  
**find** [7] 11/8 48/8 60/4  
61/7 75/1 77/12 171/5  
**finding** [18] 53/21 59/6  
60/7 69/7 69/8 69/22  
74/12 75/9 75/20 76/15  
76/25 77/8 77/14 77/21  
78/8 79/12 82/4 128/6  
**findings** [7] 58/17 112/3  
140/24 141/5 153/20  
153/24 154/1  
**fine** [2] 131/7 196/18  
**finish** [2] 182/9 182/10  
**finished** [1] 188/3  
**fire** [1] 41/4  
**firm** [2] 83/8 83/15  
**first** [30] 5/19 7/4 8/21  
10/12 11/18 11/19 12/13  
15/21 25/23 43/22 69/2

89/11 107/11 113/10 125/18  
126/12 127/11 129/4 129/12  
130/6 131/22 131/25 133/11  
134/16 158/18 173/8  
174/12 174/15 177/21  
197/19  
**fit** [4] 132/5 199/3 199/5  
199/7  
**five** [3] 73/8 84/6 172/5  
**fixed** [1] 195/1  
**flight** [129] 16/13 18/21  
19/21 20/3 20/12 22/5  
23/3 23/5 32/15 32/17  
34/14 35/25 36/1 36/6  
36/10 36/17 37/11 37/17  
37/19 37/22 37/24 40/2  
40/20 41/7 43/11 43/13  
43/16 43/18 43/19 44/7  
45/16 46/10 53/7 55/17  
55/21 58/19 59/4 59/5  
59/14 59/14 60/3 60/4  
60/16 60/18 61/7 61/10  
61/21 62/13 64/3 64/9  
66/5 66/24 67/7 74/17  
79/11 84/14 85/11 85/14  
86/15 86/19 86/21 87/21  
90/2 108/20 109/5 109/22  
114/11 114/19 114/20  
125/23 131/21 135/4 136/8  
146/9 147/4 147/25 148/5  
148/10 149/7 152/5 152/8  
152/12 154/19 154/24  
155/2 157/8 157/13 158/4  
158/5 158/17 159/17  
159/25 160/3 160/15  
163/15 165/3 165/4 165/8  
167/25 168/19 168/24  
169/4 172/5 172/10 172/16  
173/3 175/3 175/6 176/9  
176/11 176/13 177/10  
177/14 177/14 177/25  
178/1 178/2 178/7 178/8

183/20 185/22 186/8  
188/9 188/25 189/20  
189/20 189/23 193/5  
193/15  
**flights** [1] 92/22  
**flip** [2] 14/2 54/25  
**Floor** [3] 1/18 2/8 2/11  
**flown** [2] 48/3 145/24  
**fly** [5] 26/21 48/4 78/5  
98/8 98/10  
**flying** [15] 34/23 43/9  
59/11 59/12 61/18 65/13  
76/13 76/20 76/21 92/9  
92/19 119/23 130/13 182/5  
182/5  
**focus** [8] 40/12 41/9 50/5  
52/23 128/17 140/21 173/2  
183/11  
**focused** [1] 151/4  
**folks** [1] 36/9  
**follow** [10] 29/22 54/4  
57/11 99/19 126/7 154/19  
154/23 155/2 155/9 155/12  
**followed** [3] 19/1 30/5  
169/4  
**following** [9] 63/5 63/19  
74/15 76/9 126/24 127/3  
158/16 159/11 159/15  
**fools'** [1] 78/20  
**foregoing** [2] 200/5 200/6  
**foreign** [46] 16/5 25/19  
28/15 28/18 29/1 29/5  
29/7 29/19 30/6 30/20  
31/18 31/19 42/15 51/22  
52/2 77/14 77/19 78/17  
78/18 79/2 89/23 98/17  
98/20 99/21 149/6 149/10  
149/14 149/16 149/20  
149/23 150/2 150/7 154/3  
154/5 154/9 154/10 154/17  
155/9 155/14 155/19  
155/21 167/18 167/19

**F**

**foreign...** [3] 169/3 169/8  
193/1  
**foreign-based** [6] 28/15  
28/18 30/6 30/20 42/15  
52/2  
**foresaw** [1] 193/25  
**foresee** [3] 145/3 193/18  
193/21  
**foreseeability** [2] 193/18  
194/12  
**foreseen** [2] 169/20 170/1  
**form** [3] 115/4 165/20  
174/24  
**formal** [1] 51/21  
**format** [4] 19/1 20/1 57/13  
200/12  
**formula** [3] 191/1 191/2  
191/5  
**formulas** [5] 105/24  
152/12 152/15 152/18  
164/25  
**formulate** [3] 38/10 110/4  
110/14  
**formulated** [1] 134/5  
**formulating** [1] 73/25  
**FORT** [6] 1/3 1/6 2/24  
178/4 200/19 200/20  
**forth** [5] 25/1 172/16  
185/5 185/22 197/10  
**Fortner** [54] 50/23 50/24  
50/25 78/4 78/16 78/20  
79/3 108/19 108/25 109/7  
111/6 112/9 112/12 112/24  
113/1 113/6 116/21 116/23  
117/8 118/3 118/8 118/13  
119/3 119/8 120/17 120/23  
121/16 123/3 123/15 124/3  
124/7 124/23 125/10  
126/21 127/16 128/18  
129/10 130/4 132/22  
134/25 136/4 136/25

138/21 140/6 141/11 141/15  
141/19 141/24 142/3  
142/23 143/7 143/13  
143/15 185/14  
**Fortner's** [1] 127/21  
**forum** [1] 179/10  
**forward** [1] 187/11  
**forwarded** [3] 34/6 177/5  
178/24  
**found** [17] 58/19 59/4  
59/13 59/15 60/2 60/16  
61/1 61/5 61/20 69/2 69/4  
69/18 73/17 75/16 77/1  
78/15 107/17  
**foundation** [1] 135/10  
**four** [8] 15/21 45/1 66/4  
177/13 180/10 185/23  
186/15 188/12  
**four-hour** [1] 45/1  
**four-month** [1] 66/4  
**fourth** [4] 16/16 92/2  
156/15 156/21  
**frame** [4] 115/15 135/12  
159/2 186/9  
**framework** [1] 68/6  
**FRAUD** [1] 1/20  
**fraudulent** [1] 38/20  
**fraudulently** [1] 63/10  
**freaking** [1] 78/4  
**freeze** [1] 64/23  
**frequently** [1] 21/2  
**Friday** [1] 197/23  
**front** [9] 9/24 36/25  
50/17 50/18 54/25 67/14  
85/3 94/6 175/22  
**FSB** [44] 23/7 23/8 24/18  
24/24 26/16 26/16 26/25  
27/12 28/4 28/6 28/14  
28/25 29/7 29/20 30/19  
31/15 33/24 34/4 35/15  
35/17 43/1 51/17 63/3  
63/4 63/11 97/8 97/12

97/17 97/18 97/22 98/1  
98/13 98/17 99/19 115/20  
131/1 134/12 152/19 153/3  
167/14 168/21 181/17  
184/17 190/20  
**fulfill** [1] 147/14  
**full** [11] 11/15 60/12  
102/20 125/23 131/15  
131/21 132/18 135/4 136/8  
162/6 192/13  
**full-flight** [4] 125/23  
131/21 135/4 136/8  
**fully** [1] 61/8  
**function** [1] 157/22  
**functionality** [1] 195/3  
**functions** [3] 45/2 46/21  
147/15  
**fundamental** [2] 9/1 70/4  
**fundamentally** [1] 110/6  
**funny** [1] 13/24  
**further** [10] 20/16 110/22  
110/23 130/8 194/14 196/2  
199/18 199/21 200/8  
200/12

---

**G**

**gained** [1] 64/18  
**game** [1] 128/17  
**gap** [2] 130/10 130/12  
**gates** [1] 181/5  
**gathered** [1] 17/14  
**gauges** [1] 65/4  
**general** [8] 23/1 23/14  
32/8 52/17 173/6 174/4  
182/18 186/17  
**generally** [16] 17/21 29/19  
30/8 30/9 31/25 37/10  
42/14 42/25 48/22 52/22  
54/18 55/15 73/16 115/6  
174/3 193/10  
**get** [58] 4/20 6/22 12/11  
12/21 12/23 20/11 24/2  
25/17 26/12 31/1 32/6

<b>G</b>		
<b>get...</b> [47] 32/24 34/19 37/21 40/22 44/6 44/22 45/9 45/24 45/25 48/3 48/3 48/11 49/12 49/15 50/1 56/9 65/8 67/9 70/18 71/16 72/1 76/21 85/22 87/7 101/6 101/12 103/5 103/7 144/13 145/11 151/13 161/25 163/8 164/1 165/21 171/10 173/12 174/13 174/14 174/19 174/21 175/11 176/7 181/18 184/25 196/21 198/6 <b>gets</b> [4] 27/8 38/7 103/8 174/16 <b>getting</b> [6] 71/16 71/19 76/22 139/2 184/24 192/20 <b>gist</b> [1] 189/24 <b>give</b> [17] 8/12 24/13 24/16 71/12 96/3 133/12 156/1 174/18 185/25 193/25 194/11 196/19 196/20 199/2 199/7 199/8 199/12 <b>given</b> [10] 37/13 52/14 52/16 59/14 62/23 64/8 78/21 166/24 166/25 193/22 <b>gives</b> [5] 49/9 64/17 64/21 65/1 65/11 <b>glad</b> [1] 18/14 <b>glean</b> [1] 38/11 <b>gleaned</b> [1] 90/3 <b>gmail.com</b> [1] 200/21 <b>go</b> [61] 4/20 9/20 14/24 15/16 24/24 25/15 28/10 29/1 29/12 31/5 34/8 35/2 35/10 38/9 40/21 40/21 40/23 40/24 41/6 45/1 48/11 55/19 55/23 58/6 66/18 73/6 77/5 77/13	80/21 104/22 105/14 116/2 120/13 122/16 127/7 128/25 131/17 144/23 151/12 162/7 164/2 166/15 171/21 172/22 173/25 174/7 177/18 177/21 179/15 182/8 182/12 182/13 183/16 185/22 186/1 186/7 187/3 189/21 191/21 192/21 192/24 <b>goes</b> [11] 41/2 49/24 65/13 70/3 89/19 102/11 105/11 144/17 160/10 171/14 174/11 <b>going</b> [67] 7/1 7/18 7/19 8/1 12/20 13/9 31/8 31/10 31/11 34/7 34/9 37/15 43/24 48/18 48/22 49/7 50/7 55/13 57/23 58/16 58/17 61/16 63/23 65/8 66/2 68/7 68/24 69/17 72/13 74/8 74/10 74/11 79/20 79/21 79/23 80/1 88/24 91/2 103/2 108/8 110/19 115/23 116/24 122/3 126/22 131/12 131/19 132/22 132/24 133/20 153/20 163/7 166/7 166/22 166/23 171/7 171/11 172/22 191/23 194/2 197/8 197/14 197/15 197/17 197/19 198/10 198/11 <b>golly</b> [1] 185/21 <b>gone</b> [7] 30/23 63/24 64/6 76/5 192/5 192/6 192/13 <b>good</b> [19] 4/12 4/22 5/2 5/4 5/6 5/8 12/20 13/18 29/17 45/9 45/12 93/18 116/14 128/25 139/16 145/16 145/17 166/23 195/7 <b>Google</b> [1] 101/10	<b>Googled</b> [3] 33/2 101/9 101/11 <b>got</b> [16] 26/3 33/2 33/2 37/7 45/1 45/12 80/5 91/22 120/12 132/23 171/9 178/24 180/3 180/5 186/12 196/17 <b>gotten</b> [3] 40/11 165/19 192/7 <b>GOULD</b> [1] 2/23 <b>government</b> [27] 1/6 1/16 6/8 6/12 9/13 9/20 9/22 10/17 11/25 12/21 18/13 26/1 58/9 90/20 91/23 92/18 126/23 128/5 134/5 139/5 142/14 177/17 178/11 178/14 178/22 179/11 199/18 <b>government's</b> [4] 9/7 46/5 92/8 92/19 <b>governments</b> [1] 154/9 <b>grade</b> [1] 181/25 <b>graded</b> [1] 182/22 <b>graduating</b> [1] 172/15 <b>grand</b> [2] 110/3 110/8 <b>granted</b> [2] 12/16 15/6 <b>great</b> [1] 37/15 <b>greater</b> [1] 96/19 <b>greatest</b> [1] 18/2 <b>ground</b> [3] 40/22 44/12 139/9 <b>grounded</b> [1] 125/20 <b>grounds</b> [2] 10/1 110/2 <b>group</b> [27] 7/20 106/2 106/5 109/6 109/22 115/21 118/10 118/15 118/19 118/25 121/12 123/5 123/9 124/10 124/14 124/20 124/25 125/17 125/23 126/1 126/12 126/16 126/20 129/3 141/21 147/19 148/15

<b>G</b>		
<b>GSA</b> [2] 178/24 179/10	142/23 143/7 143/9 143/12	85/3 133/13 133/14
<b>guess</b> [17] 10/20 10/21	143/13 143/16 147/4	<b>happy</b> [2] 81/17 139/25
14/1 15/16 22/21 51/8 55/2	157/12 158/3 161/21 161/23	<b>hard</b> [1] 183/24
58/4 67/16 69/8 81/13	161/23 162/5 162/6 164/3	<b>harmed</b> [1] 7/13
89/12 96/8 128/2 180/6	164/17 165/2 165/3 165/19	<b>has</b> [57] 4/15 5/24 9/12
185/23 186/4	165/20 165/20 165/23	10/7 10/12 11/2 11/4 11/12
<b>guesstimate</b> [1] 198/21	165/24 166/1 166/2 166/5	11/23 22/15 25/8 27/12
<b>guidance</b> [7] 29/6 49/22	166/10 167/9 168/24 169/8	28/1 28/5 28/8 28/23
49/22 49/25 63/19 191/7	170/8 174/22 174/23	30/23 36/5 40/7 40/11
193/2	174/23 174/24 175/16	48/2 52/12 55/25 64/13
<b>guidelines</b> [6] 29/10 63/5	175/18 175/25 176/1 176/6	65/3 65/7 65/13 72/7
104/22 104/23 148/6	176/15 177/8 177/13	72/8 73/9 76/23 84/6
192/21	177/14 177/17 177/25	86/18 89/13 110/3 110/11
<b>guilt</b> [1] 128/6	178/13 178/16 179/1 185/10	119/24 122/6 127/14
	185/11 190/15 191/2 192/1	133/17 148/21 163/22
	192/7 192/13 192/13	164/2 166/20 168/13
	193/12 194/6 199/5 199/6	170/23 175/7 178/3 181/1
<b>H</b>		
<b>had</b> [153] 7/19 7/20 8/4	<b>hadn't</b> [3] 76/4 87/17	182/18 187/10 188/13
15/22 19/6 23/9 33/10	168/20	188/22 189/10 196/15
33/12 41/14 41/17 43/1	<b>half</b> [6] 33/21 50/18 92/6	197/9 199/4
43/17 44/10 44/13 44/17	185/23 186/15 198/22	<b>hasn't</b> [3] 139/21 139/23
44/22 45/1 45/5 45/6	<b>half-truths</b> [2] 33/21 92/6	140/1
53/12 56/6 56/16 56/24	<b>hand</b> [6] 5/13 13/3 61/18	<b>HATCH</b> [4] 2/16 2/23 4/22
56/25 57/7 59/24 61/16	80/6 80/9 89/2	5/3
63/9 63/18 67/25 69/24	<b>handbook</b> [1] 49/22	<b>have</b> [375]
70/17 71/23 76/12 78/12	<b>handed</b> [1] 13/21	<b>haven't</b> [8] 6/15 93/8
78/13 78/14 83/5 83/12	<b>handle</b> [2] 15/3 39/16	93/23 94/1 151/24 152/7
85/10 85/25 90/1 94/20	<b>handled</b> [1] 174/10	153/23 155/1
96/17 96/17 104/8 104/10	<b>HANEY</b> [3] 2/20 4/24	<b>having</b> [3] 30/2 136/7
104/11 104/13 105/1 105/15	170/12	138/9
105/23 106/17 107/13	<b>Haney</b> .....145	<b>Hawker</b> [7] 44/11 44/19
110/6 111/16 114/10 114/11	[1] 3/9	44/20 45/3 46/8 172/8
115/5 118/20 119/5 123/9	<b>hangar</b> [3] 56/9 177/15	181/12
123/15 123/20 123/22	178/7	<b>Hawkers</b> [2] 45/22 175/16
123/25 124/2 124/2 126/9	<b>happen</b> [1] 77/5	<b>hazarding</b> [1] 186/4
126/14 126/18 129/5	<b>happened</b> [17] 53/15 53/18	<b>he</b> [51] 8/6 28/4 28/8
129/14 129/17 130/5	53/21 78/12 79/15 97/3	40/9 40/10 40/11 48/3
130/25 131/3 131/20 132/1	114/23 127/11 127/12	48/4 50/23 65/3 65/3
132/5 132/10 132/18	128/17 130/18 130/22	65/3 65/4 65/4 65/6 65/6
132/23 133/6 133/6 133/7	133/24 167/5 171/5 188/6	65/7 65/7 65/8 65/12
133/17 133/20 134/1	199/4	65/13 65/16 65/19 65/19
134/24 134/25 135/25	<b>happening</b> [5] 53/23 65/9	78/17 78/22 108/22

H		
<b>he...</b> [24] 108/23 109/2 112/5 119/24 122/15 127/21 131/6 135/14 139/21 139/23 140/1 140/2 142/17 159/2 164/4 166/20 166/23 170/15 170/15 170/15 192/4 196/15 196/17 198/19	72/14 72/23 74/7 74/8 74/12 77/11 77/14 80/16 80/21 80/25 84/7 88/2 88/23 89/4 89/16 89/24 91/18 92/13 93/7 96/7 96/13 100/8 103/14 122/7 122/11 125/20 128/16 132/22 132/24 138/2 145/7 165/11 167/22 178/4 180/4 184/10 188/3 188/22 191/14 195/17 196/16 196/17	15/12 15/13 21/10 57/19 57/24 57/25 58/1 63/22 65/22 68/16 72/4 73/20 73/23 80/20 82/1 82/18 84/5 84/6 90/18 90/24 91/16 92/24 93/4 93/9 93/13 96/11 102/1 107/24 110/1 110/9 110/11 110/17 110/24 115/14 115/23 115/25 116/4 116/5 116/6 116/24 119/20 120/3 122/3 122/17 126/22 128/1 128/22 130/1 132/7 135/6 138/17 139/1 139/24 142/6 145/5 145/6 145/7 150/10 150/18 151/6 151/11 158/24 168/7 171/5 172/20 187/23 188/2 194/15 194/16 194/21 195/14 195/19 196/3 196/10 196/23 197/9 197/20 198/4 199/14 199/18 199/19 199/20 <b>HONORABLE</b> [1] 1/12 <b>hope</b> [1] 164/8 <b>hour</b> [4] 45/1 50/18 50/18 198/23 <b>hours</b> [3] 44/25 172/14 198/22
<b>he's</b> [13] 8/12 11/6 11/19 51/6 65/16 119/25 120/6 122/11 135/7 135/12 166/18 166/18 166/22	<b>here's</b> [1] 186/21	196/17
<b>heading</b> [1] 112/2	<b>Hey</b> [1] 194/22	
<b>hear</b> [10] 8/15 49/9 65/2 65/22 66/17 105/5 113/10 195/17 197/2 200/7	<b>high</b> [2] 158/22 159/8	
<b>heard</b> [10] 5/15 5/25 6/4 6/4 7/7 14/21 48/19 113/10 130/19 166/4	<b>higher</b> [6] 15/25 43/4 71/15 76/23 162/7 162/11	
<b>hearing</b> [12] 1/11 5/21 6/23 13/25 15/20 25/25 26/13 90/9 117/3 139/3 142/15 145/12	<b>highest</b> [1] 52/10	
<b>hearings</b> [2] 11/16 73/8	<b>highlight</b> [1] 68/24	
<b>hearsay</b> [9] 57/24 58/3 68/18 73/22 73/24 73/25 82/13 90/22 93/10	<b>HILTON</b> [2] 2/12 4/11	
<b>held</b> [4] 73/8 110/12 156/11 178/8	<b>him</b> [4] 8/15 11/7 65/11 65/16	
<b>help</b> [7] 30/21 34/2 39/4 71/8 88/10 152/12 163/19	<b>himself</b> [1] 28/4	
<b>helped</b> [1] 173/4	<b>hindsight</b> [1] 103/15	
<b>helps</b> [1] 29/11	<b>his</b> [20] 7/12 9/11 11/17 11/21 13/9 14/14 15/4 28/9	
<b>her</b> [1] 106/10	40/17 48/4 73/25 132/22	
<b>here</b> [71] 4/6 4/8 4/16 4/17 4/21 4/21 5/10 12/1 13/6 14/13 17/7 17/24 19/17 21/7 23/3 25/3 25/6 25/13 36/4 41/25 43/21 47/3 48/22 50/6 54/15 55/12 57/10 60/14 72/9	138/8 164/4 166/21 168/13 196/11 196/12 196/15 197/16	
	<b>history</b> [4] 19/3 19/4 20/3 55/17	
	<b>Holbrook</b> [1] 5/8	
	<b>hold</b> [9] 34/23 83/7 83/14 119/21 145/10 170/9 170/9 172/4 172/5	
	<b>holes</b> [1] 179/19	
	<b>honest</b> [1] 52/19	
	<b>Honor</b> [99] 4/9 4/14 4/22 5/2 5/9 5/15 6/18 7/5 7/24 8/14 8/20 10/8 11/22 12/24 13/8 14/12 15/2	
		29/10 30/4 33/10 34/8 35/2 35/5 35/6 35/19 36/1 38/5 40/13 47/15 49/18 49/25 59/25 62/13 62/24 65/8 65/14 75/11 75/22 76/2 76/4 76/4 76/17 77/10 78/6 79/2 87/2

<b>H</b>		
<b>how... [56]</b> 90/12 92/16 98/6 99/1 101/21 101/24 102/7 102/8 102/9 102/12 102/16 102/19 103/10 104/23 105/9 109/23 119/4 120/24 121/11 128/10 137/3 141/12 143/19 153/3 153/12 153/17 164/4 164/22 165/16 167/13 167/17 167/19 171/2 171/13 172/10 178/18 178/18 181/4 181/10 181/13 181/15 181/15 182/1 183/13 185/12 185/12 185/18 185/25 186/6 190/17 190/19 190/20 191/7 192/21 192/25 196/4 <b>however [4]</b> 14/19 84/23 128/4 154/9 <b>huh [2]</b> 73/15 197/5 <b>hundreds [3]</b> 19/16 34/24 57/7 <b>hyperlink [1]</b> 82/3 <b>hypos [2]</b> 115/4 115/7 <b>hypothetical [3]</b> 85/21 87/6 115/3	111/8 112/1 115/23 116/24 117/21 122/3 126/15 126/22 127/9 128/2 131/12 138/15 139/25 143/3 145/7 151/1 153/20 159/10 162/5 162/9 163/7 167/21 167/22 168/8 173/13 179/8 180/17 181/2 183/9 188/12 191/1 191/4 196/11 196/12 197/21 <b>I've [15]</b> 13/21 14/19 36/16 54/8 74/10 93/8 98/2 108/10 109/8 119/16 136/23 150/25 180/5 188/16 196/16 <b>IAN [3]</b> 2/23 5/3 5/4 <b>ICAO [11]</b> 19/1 20/1 25/7 25/9 53/25 53/25 54/3 68/3 86/4 87/14 133/7 <b>ICAP [2]</b> 179/9 179/9 <b>idea [3]</b> 34/25 101/12 113/4 <b>identification [3]</b> 54/13 72/7 72/8 <b>identified [1]</b> 120/13 <b>identify [5]</b> 4/21 58/16 119/24 153/16 184/15 <b>if [141]</b> 5/15 6/1 6/11 6/22 9/25 10/22 10/25 11/7 11/10 11/10 12/1 12/15 12/17 13/17 14/2 14/7 14/24 15/3 15/6 16/25 18/4 18/8 18/11 18/12 20/10 21/4 21/10 28/8 34/5 35/5 37/15 38/23 39/2 39/8 46/1 50/23 51/24 54/15 54/25 55/4 56/3 56/6 56/24 57/1 58/9 58/17 64/21 64/22 65/14 66/16 70/7 71/19 71/23 71/24 72/13 73/6 80/21 82/10 83/6 83/13 84/25 87/17 89/15 89/19	90/20 90/24 91/9 102/20 104/8 104/10 104/11 104/13 104/25 105/15 107/6 109/2 110/21 110/21 110/22 111/22 115/4 117/5 119/18 119/24 122/12 123/9 124/7 130/19 131/19 138/4 143/9 147/4 155/25 156/15 157/11 158/2 159/21 163/14 163/14 163/21 163/25 164/3 164/17 165/25 166/4 166/12 167/8 168/12 168/19 169/7 171/10 171/11 172/15 172/22 173/24 174/7 175/1 176/6 179/18 182/13 186/13 187/3 187/7 187/11 187/15 187/16 188/13 188/16 188/21 189/12 191/4 192/7 192/17 194/2 194/4 194/11 195/22 196/14 197/20 198/4 199/12 <b>ignore [1]</b> 192/16 <b>illicit [1]</b> 56/17 <b>Illinois [1]</b> 2/11 <b>immediate [1]</b> 84/22 <b>immediately [3]</b> 40/19 89/2 129/22 <b>impact [6]</b> 12/19 38/2 38/5 128/11 184/18 185/11 <b>impacted [11]</b> 7/21 104/5 104/14 105/2 105/4 105/6 105/7 105/10 105/16 142/24 143/9 <b>impacts [2]</b> 9/3 189/11 <b>impeded [3]</b> 92/8 92/16 92/18 <b>implications [1]</b> 183/14 <b>importance [2]</b> 39/8 74/21 <b>important [6]</b> 35/11 38/13 71/9 71/17 154/1 185/7 <b>imposed [1]</b> 11/25
<b>I</b>		
<b>I'll [4]</b> 41/24 92/9 107/12 116/1 <b>I'm [84]</b> 7/1 8/21 10/21 11/1 12/20 13/9 15/3 21/18 24/5 26/4 27/5 27/7 31/5 31/11 31/24 32/20 33/8 37/15 39/7 43/24 48/20 53/14 54/5 54/15 57/23 58/16 58/17 66/2 68/24 74/10 74/11 75/5 78/6 79/20 80/1 80/24 88/24 92/16 93/20 99/13 99/17 101/14 102/18 105/2 105/12 107/5 107/5 109/2 110/19	11/10 11/10 12/1 12/15 12/17 13/17 14/2 14/7 14/24 15/3 15/6 16/25 18/4 18/8 18/11 18/12 20/10 21/4 21/10 28/8 34/5 35/5 37/15 38/23 39/2 39/8 46/1 50/23 51/24 54/15 54/25 55/4 56/3 56/6 56/24 57/1 58/9 58/17 64/21 64/22 65/14 66/16 70/7 71/19 71/23 71/24 72/13 73/6 80/21 82/10 83/6 83/13 84/25 87/17 89/15 89/19	

<b>I</b>		
improper [2] 60/5 62/24	indicate [3] 51/14 188/23 193/10	inspector [12] 24/3 27/25 40/9 45/14 45/21 46/6
improperly [1] 85/1	indicated [5] 21/24 55/16 90/10 144/11 191/25	173/14 173/18 174/11 174/12 181/15 182/21
in [542]	indicates [5] 27/3 72/9 74/20 126/24 173/13	inspectors [8] 49/23 177/2 177/4 178/3 181/2 182/9
in fairly [1] 37/13	indication [4] 71/13 99/8 133/13 162/19	182/11 182/19
in-depth [1] 57/2	indications [4] 165/22 165/23 165/24 167/3	instance [1] 107/15
inaccurate [4] 35/18 35/20 41/18 42/4	individual [4] 27/25 56/11 167/13 167/16	instances [1] 180/2
inadequate [6] 58/3 69/21 70/2 75/13 87/1 87/3	Indonesia [10] 18/20 31/7 41/12 53/9 53/14 54/11 54/17 66/2 94/24 100/22	Instant [2] 78/3 78/17
incident [2] 21/6 176/18	Indonesian [18] 33/9 33/14 53/12 66/13 68/3 68/9 84/12 100/2 126/25 131/8 140/10 140/11 143/2 153/21 154/14 155/6 156/8 188/6	Instead [2] 85/25 87/11
inclined [1] 29/22	Indonsian [1] 68/24	instruct [1] 181/1
include [10] 58/20 59/5 70/10 76/11 92/21 111/6 127/23 128/12 188/24 189/5	industry [3] 23/23 29/15 30/8	instructing [2] 181/2 181/19
included [11] 28/5 34/15 34/16 38/24 74/19 115/4 125/2 132/8 132/9 169/9 194/8	influential [1] 29/4	instruction [2] 49/18
includes [1] 127/15	inform [1] 107/19	180/22
including [8] 56/18 60/2 73/10 92/9 112/6 112/13 127/23 184/18	information [201]	instructor [5] 50/17 172/5 172/16 173/3 180/17
incomplete [13] 16/18 35/18 35/20 35/21 38/20 39/1 41/18 42/5 60/12 62/21 85/20 87/5 134/2	informed [2] 5/20 78/16	instrument [3] 71/25
inconsistent [2] 26/6 51/3	Infrastructure [1] 72/12	175/13 195/4
incorporate [7] 26/19 27/21 29/8 29/18 52/7 167/20 193/2	Infrastructure's [1] 72/19	instruments [1] 71/21
incorporated [4] 27/4 167/14 181/17 182/17	ingrained [1] 65/16	integrating [1] 173/10
Incorporating [1] 27/23	initial [3] 22/5 148/5 150/11	integration [1] 181/8
incorrect [1] 34/10	injuries [1] 55/17	intended [2] 128/24 190/5
increase [1] 61/23	inkling [1] 133/18	intending [1] 5/20
incredibly [2] 76/12 136/13	input [4] 97/4 103/9 105/21 106/17	intends [1] 7/12
indeed [1] 69/16	inside [4] 46/25 54/25 57/16 127/12	intention [1] 9/19
independent [1] 101/5	inspect [2] 182/12 182/13	intentional [4] 35/14
Index.....	inspection [5] 175/3 175/6 176/11 178/1 178/7	intentionally [10] 63/10
..... 201 [1] 3/12		118/14 118/19 118/24 121/5 121/10 122/24 123/4 124/9 190/9
		interact [3] 25/16 180/12 180/15
		interacted [1] 62/14
		interaction [1] 112/21
		interactions [1] 45/16
		Interagency [1] 179/2
		interest [12] 5/24 6/10 6/12 9/5 9/15 18/2 51/12 53/15 53/17 78/1 90/9

<b>I</b>		
<b>interest...</b> [1] 107/25	<b>investigating</b> [4] 17/19 67/24 143/23 144/20	11/3 14/13 17/15 17/21 35/8 52/8 76/19 96/5
<b>interested</b> [1] 53/21	<b>investigation</b> [18] 18/21 19/20 33/5 54/10 55/6	122/5 133/18 148/25 185/5
<b>interesting</b> [1] 198/14	61/21 67/19 69/4 72/20	<b>issued</b> [7] 20/7 126/1
<b>interests</b> [2] 8/25 11/14	94/24 101/5 106/20 114/8	126/12 134/14 134/19
<b>interfere</b> [1] 112/22	130/10 130/21 133/10	159/17 191/17
<b>interim</b> [7] 3/18 19/20 20/6 67/19 133/7 153/22 188/22	134/8 173/24	<b>issues</b> [28] 5/16 6/17 8/24 9/14 15/10 16/24 22/8
<b>internal</b> [15] 34/8 63/19 74/19 97/6 107/13 110/5 110/15 112/19 113/4 113/5 113/7 191/6 191/12 192/21 194/9	<b>investigations</b> [8] 54/1 54/2 133/3 174/8 176/19	31/9 32/25 36/24 36/24 43/11 52/1 52/23 66/9
<b>Internally</b> [1] 95/21	176/19 176/20 176/24	73/8 79/18 86/4 87/14
<b>international</b> [5] 25/11 53/15 89/8 161/4 161/8	<b>Investigative</b> [1] 112/2	89/12 110/7 117/1 139/2
<b>Internet</b> [1] 28/20	<b>investigators</b> [2] 56/8	190/9 190/11 190/12 192/1
<b>interplay</b> [1] 20/24	78/11	198/12
<b>intervening</b> [1] 188/12	<b>invited</b> [3] 133/8 175/11	<b>it</b> [424]
<b>interviews</b> [1] 73/12	175/11	<b>it's</b> [96] 7/25 9/21 10/18
<b>into</b> [69] 13/12 13/14 14/2 15/4 17/15 21/3 25/15 26/12 26/19 26/24 27/4 27/21 27/23 28/6 29/8 29/18 30/23 31/1 32/6 32/7 35/3 39/4 40/22 47/11 51/17 52/7 53/8 53/13 55/20 55/24 57/20 57/22 58/24 61/9 64/19 68/21 70/19 74/5 75/22 76/22 77/10 82/17 82/24 85/11 88/7 91/5 93/3 103/7 105/11 105/14 106/17 108/8 120/19 132/5 139/2 142/17 144/17 144/23 165/21 167/14 167/20 173/10 176/11 177/21 181/17 188/14 191/8 192/20 193/2	13/11 13/24 13/24 14/9 18/18 19/25 21/8 22/22 26/3 28/19 28/20 29/13 30/9 30/23 31/3 35/11 35/11 37/2 37/15 38/13 48/23 51/8 53/5 57/2 57/14 71/22 73/7 76/19 79/21 80/5 89/11 92/2 93/21 94/8 94/8 94/9 96/7 96/10 96/16 96/22 96/25 100/11 103/2 103/16 103/17 104/25 110/6 112/14 113/11 120/1 122/14 123/5 129/2 130/15 133/4 134/5 138/4 138/7 140/25 142/15 143/14 144/25 150/18 151/9 155/5 156/3 156/21 157/7 158/2 159/20 162/2 162/10 162/11 163/21 164/8 164/15 164/21 165/2 167/9 167/23 172/25 181/4 183/23 183/24 185/13 187/18 195/5 195/11 195/12 195/22 197/8 197/15 197/23	
<b>introduce</b> [2] 4/14 64/14	<b>issue</b> [20] 5/24 6/6 6/8	<b>item</b> [19] 17/8 18/19 19/17
<b>introduction</b> [1] 45/12	7/4 7/10 8/16 8/18 8/21	

<b>I</b>		
<b>item...</b> [16] 19/18 20/17 21/7 21/7 21/19 22/20 22/21 23/3 25/6 89/16 91/11 161/18 163/21 163/24 166/9 195/4 <b>item-type</b> [1] 166/9 <b>items</b> [13] 17/7 40/19 40/23 40/24 41/2 41/3 41/8 56/1 64/21 64/22 146/21 166/6 189/2 <b>its</b> [25] 10/12 30/14 58/10 77/20 79/7 82/12 85/11 86/1 87/11 91/8 92/4 98/14 112/6 112/6 112/7 112/14 112/19 113/4 113/23 113/24 150/11 178/3 183/10 189/23 190/8	<b>joining</b> [1] 9/12 <b>judge</b> [3] 1/12 136/12 185/12 <b>judgment</b> [2] 133/19 133/22 <b>Judicial</b> [1] 200/13 <b>jump</b> [7] 18/18 48/21 66/3 75/15 89/19 189/7 193/24 <b>jumping</b> [1] 188/7 <b>June</b> [3] 77/14 78/3 80/18 <b>June 2017</b> [2] 77/14 78/3 <b>June 5th</b> [1] 80/18 <b>jurisdiction</b> [3] 51/21 67/25 68/2 <b>jury</b> [2] 110/4 110/8 <b>just</b> [117] 5/15 5/19 7/11 7/24 21/22 22/20 23/4 24/25 25/9 26/10 26/12 26/24 29/20 32/11 33/19 36/24 37/9 41/24 43/9 45/5 48/9 48/21 49/17 50/5 50/10 51/4 54/8 56/8 57/24 58/6 58/9 60/14 61/1 62/8 64/10 66/4 67/16 68/9 71/2 71/6 75/5 75/6 78/19 82/18 84/19 88/2 90/24 91/15 93/9 94/3 94/13 94/13 96/21 99/14 99/17 100/12 100/14 101/12 105/2 105/9 105/13 106/22 107/11 107/12 110/2 110/19 110/22 111/22 113/10 115/25 117/7 123/24 125/4 126/18 129/2 131/19 134/15 136/11 138/19 139/13 139/22 145/7 145/10 151/1 151/16 152/24 153/5 155/9 155/14 161/9 162/12 163/25 170/13 172/23 173/2 173/6 173/13 174/3 175/5 178/1 179/23 183/24 183/24 186/13	188/2 189/7 189/10 190/5 193/3 193/24 195/14 196/4 196/11 197/2 198/4 198/25 199/2 <b>Justice</b> [11] 5/23 92/1 92/3 93/1 93/21 110/3 110/11 110/14 116/17 116/25 179/22
<b>J</b>		<b>K</b>
<b>Jackson</b> [1] 2/13 <b>Jacob</b> [1] 142/11 <b>JACOBS</b> [6] 1/19 5/7 9/16 93/15 93/20 115/15 <b>Jacobs</b> .....93 [1] 3/7 <b>Jacobs</b> .....116 [1] 3/8 <b>Jakarta</b> [2] 53/13 84/16 <b>January</b> [3] 88/3 91/21 186/24 <b>January 7</b> [1] 91/21 <b>January 7th</b> [2] 88/3 186/24 <b>Java</b> [2] 53/8 53/13 <b>JCAB</b> [1] 83/19 <b>Jedi</b> [1] 78/19 <b>Jets</b> [1] 175/17 <b>job</b> [6] 56/11 175/21 176/2 176/4 179/15 184/25 <b>join</b> [5] 58/1 68/19 73/23 82/14 90/23	<b>K-e-y-e-s</b> [1] 13/20 <b>Katie</b> [1] 5/8 <b>Katrina</b> [1] 177/22 <b>keen</b> [2] 74/21 90/9 <b>keep</b> [2] 130/13 198/4 <b>kept</b> [1] 6/11 <b>Keselamatan</b> [1] 54/16 <b>key</b> [4] 75/8 108/4 112/5 112/13 <b>KEYES</b> [21] 3/5 13/1 13/20 15/16 93/14 93/18 93/20 145/16 147/7 148/9 149/6 151/16 161/19 167/1 167/22 169/15 188/5 197/13 197/14 198/11 198/15 <b>Keyes'</b> [2] 3/16 21/19 <b>killed</b> [2] 4/15 67/1 <b>kind</b> [38] 17/4 24/17 28/1 29/3 29/11 29/15 30/13 32/8 34/22 37/2 41/7 44/4 52/4 52/5 54/3 55/14 56/18 61/2 61/17 64/10 65/6 67/20 71/8 73/1 75/6 81/19 84/20 85/9 85/18 101/20 174/3 177/16 181/3 182/18 183/23 184/6 194/10 195/5 <b>kinds</b> [11] 22/8 25/1 25/2 47/6 47/7 52/1 57/11 63/17 68/13 174/9 190/22 <b>King</b> [5] 45/22 172/8 175/17 178/4 181/12 <b>KIRKLAND</b> [3] 2/20 4/24	

**K**

**KIRKLAND...** [1] 5/3  
**kit** [1] 56/16  
**Klein** [4] 106/4 106/7  
125/13 125/13  
**Klein's** [2] 106/9 125/15  
**knew** [20] 119/3 120/18  
120/24 121/16 122/10  
122/12 126/8 126/13  
127/22 129/18 132/21  
134/19 134/22 135/22  
135/24 135/25 141/11  
141/15 141/24 185/20  
**KNKT** [15] 3/17 54/21  
54/23 55/1 55/2 55/7  
58/19 59/4 59/13 59/15  
60/2 60/16 61/5 61/20  
67/20  
**know** [83] 6/16 17/4 25/8  
26/8 32/21 34/19 35/4  
48/12 48/17 51/7 55/11  
59/23 63/13 65/3 71/17  
71/23 71/24 72/13 74/6  
76/2 76/4 81/2 81/7 83/22  
84/5 97/25 99/5 99/10  
99/15 104/21 108/7 108/12  
108/15 108/19 108/23  
108/25 109/2 109/5 109/17  
111/15 113/6 116/22 116/23  
117/8 118/3 118/5 122/10  
122/13 123/17 123/19  
123/20 123/24 125/13  
125/15 127/22 130/17  
132/1 132/23 136/24  
157/16 159/10 161/20  
162/12 162/14 168/19  
168/24 169/3 169/7 169/11  
171/2 180/4 184/9 184/20  
186/6 186/12 187/16  
194/23 197/3 197/20  
198/4 198/8 198/15 198/16  
**knowing** [1] 114/7

**knowledge** [18] 20/9 31/3  
59/11 59/24 60/13 64/18  
65/13 79/10 102/7 113/8  
119/5 153/12 153/17 163/15  
166/11 166/17 170/8  
190/22  
**knowledge/training** [1]  
153/12  
**knowledgeable** [1] 79/17  
**known** [17] 8/4 30/8 30/9  
30/10 53/25 89/7 104/10  
104/11 104/13 119/9 129/5  
145/9 158/21 159/1 159/7  
161/21 185/10  
**knows** [6] 6/18 8/23 28/20  
65/16 122/10 122/15  
**Komite** [1] 54/16  
**KREINDLER** [2] 2/7 2/7

**L**

**L-o-f-f-i-n-g** [1] 136/22  
**lack** [11] 16/18 42/2 61/16  
62/4 70/4 75/23 100/14  
114/15 153/11 153/17  
183/10  
**lacked** [2] 35/16 49/23  
**lacks** [1] 5/24  
**lagged** [1] 49/21  
**laid** [4] 10/12 39/16 143/14  
191/22  
**Lake** [1] 2/5  
**land** [1] 114/13  
**landing** [5] 40/4 40/4  
86/11 87/22 114/24  
**landscape** [1] 66/13  
**large** [5] 56/9 57/15  
95/24 147/11 163/24  
**large-emphasis** [1] 163/24  
**LaSalle** [1] 2/11  
**last** [14] 8/18 13/19 25/6  
25/9 36/4 55/22 55/22  
61/1 61/20 91/15 94/4  
94/9 112/3 117/11

**late** [3] 88/15 128/17  
171/8  
**later** [6] 58/4 63/11 63/13  
66/17 78/11 189/4  
**latitude** [2] 15/6 171/15  
**law** [3] 2/3 2/10 51/24  
**lawful** [1] 86/1  
**lawfully** [1] 87/11  
**lay** [1] 135/10  
**laying** [1] 56/10  
**lays** [1] 130/9  
**lead** [2] 7/2 137/14  
**leaders** [1] 29/16  
**leading** [1] 74/18  
**lean** [1] 30/1  
**Lear** [1] 175/17  
**learn** [7] 70/20 101/9  
120/15 120/20 120/22  
121/1 124/3  
**learned** [11] 65/19 67/6  
101/23 102/23 126/16  
132/2 132/4 158/16 158/18  
166/18 166/19  
**learning** [1] 65/12  
**least** [5] 7/17 9/12 74/19  
155/5 194/8  
**led** [5] 62/8 137/9 137/25  
140/13 169/12  
**left** [2] 80/6 80/9  
**left-hand** [2] 80/6 80/9  
**legal** [1] 68/4  
**legitimate** [1] 90/19  
**legwork** [1] 30/25  
**length** [1] 198/11  
**lengthy** [2] 55/12 68/8  
**lent** [1] 192/23  
**less** [2] 154/1 154/23  
**let** [21] 4/21 12/20 23/4  
26/12 32/4 41/9 43/9 50/5  
53/5 62/11 92/16 100/12  
110/19 139/13 142/22  
163/8 171/13 171/13 176/21

<b>L</b>		
<b>let... [2]</b> 189/7 193/24	39/12 190/12	160/15 160/22 162/15
<b>let's [37]</b> 4/20 12/23 17/6 19/17 26/24 32/7 35/10 42/25 43/15 47/11 54/15 55/12 58/12 66/18 72/9 75/5 75/15 77/13 79/24 80/4 80/7 80/20 80/21 84/5 84/11 84/19 85/10 88/1 116/3 145/10 145/11 157/4 158/8 171/10 183/11 186/1 187/15	<b>light [1]</b> 190/13 <b>lights [1]</b> 65/5 <b>like [60]</b> 7/8 9/16 14/13 14/25 15/1 15/20 21/12 23/13 25/6 31/7 33/18 35/7 36/9 37/10 39/22 47/16 49/13 50/1 51/8 51/9 53/1 53/14 58/2 64/10 66/19 68/3 71/9 71/18 71/18 72/4 73/2 80/22 81/20 81/20 85/6 86/6 87/17 89/9 94/3 95/24 97/1 100/11 101/6 110/1 113/14 119/10 122/9 123/24 136/12 136/16 137/6 156/11 180/7 181/12 182/3 185/4 193/4 196/4 199/4 199/11	162/17 162/21 167/5 167/25 168/15 185/18 193/5 193/8 <b>list [2]</b> 28/21 28/23 <b>listed [2]</b> 21/21 140/13 <b>listen [1]</b> 117/4 <b>listening [1]</b> 136/11 <b>litigation [1]</b> 10/9 <b>little [26]</b> 20/15 22/7 26/24 27/8 36/1 43/15 43/25 45/19 47/13 50/17 62/11 67/11 84/11 84/19 103/8 115/16 133/21 164/7 171/3 171/7 171/15 173/2 173/17 174/9 180/25 197/14
<b>letter [2]</b> 51/24 180/3	<b>lived [1]</b> 86/13	
<b>letters [3]</b> 73/9 73/10 73/11	<b>LLC [2]</b> 2/7 2/23	
<b>level [59]</b> 15/25 32/8 43/4 47/23 48/22 49/2 49/3 49/5 49/6 50/7 50/23 51/13 51/17 52/10 62/13 62/14 62/17 62/19 62/20 63/6 63/15 63/16 63/20 63/21 88/13 88/14 88/20 96/18 96/19 104/6 104/24 123/10 123/11 152/2 157/7 157/14 162/7 162/8 164/13 164/13 164/13 165/14 168/25 169/1 186/1 186/2 186/7 189/10 191/3 191/3 191/13 192/6 192/7 192/14 192/22 192/24 193/13 194/22 194/25	<b>LLP [3]</b> 2/13 2/17 2/20	
<b>levels [7]</b> 22/14 47/8 48/18 73/24 163/9 163/16 191/8	<b>load [1]</b> 166/3	
<b>Lexington [1]</b> 2/8	<b>local [4]</b> 29/9 84/14 86/16 86/17	
<b>liaising [1]</b> 195/20	<b>Loffing [5]</b> 136/20 136/22 136/24 137/3 137/8	
<b>lied [1]</b> 87/17	<b>logical [1]</b> 63/5	
<b>lies [3]</b> 76/8 84/17 92/18	<b>long [10]</b> 23/12 49/20 72/19 74/7 91/19 171/2 184/20 185/25 186/6 197/8	
<b>life [8]</b> 35/7 39/12 64/11 65/10 86/11 86/12 87/23 190/12	<b>longer [2]</b> 40/5 186/16	
<b>life-or-death [3]</b> 35/7	<b>look [62]</b> 17/23 18/15 18/17 23/13 24/7 24/17 27/20 27/20 28/2 28/4 28/4 29/5 29/16 30/20 32/8 33/9 37/2 37/3 37/10 37/23 39/22 40/10 40/17 44/17 49/25 51/7 51/24 52/6 52/8 54/12 55/23 55/24 56/3 56/5 56/6 56/12 56/20 56/21 56/22 57/2 71/9 71/25	

<b>L</b>	<b>M</b>	<b>malfunction</b> [4] 35/6 35/6 76/1 183/7 <b>man</b> [1] 136/20 <b>management</b> [5] 56/25 178/13 179/18 179/19 197/12 <b>manager</b> [7] 28/1 175/2 176/2 176/12 176/24 177/1 177/10 <b>mandating</b> [1] 189/3 <b>Maneuvering</b> [3] 32/12 98/5 156/16 <b>manner</b> [4] 56/1 56/2 62/6 159/24 <b>manual</b> [24] 16/14 32/15 34/14 36/6 36/11 36/17 37/11 37/17 37/19 37/22 37/25 38/7 58/19 60/3 66/6 79/8 85/9 87/2 87/3 146/9 146/11 159/17 160/1 161/10 <b>manuals</b> [14] 26/19 27/5 32/17 35/25 36/2 42/1 42/3 59/14 85/13 114/11 114/25 146/15 189/21 189/23 <b>manufactured</b> [1] 42/18 <b>manufacturer</b> [10] 23/24 26/18 27/15 28/21 31/1 31/11 47/19 133/8 133/9 185/1 <b>manufacturer's</b> [1] 23/18 <b>manufacturers</b> [2] 36/5 52/18 <b>many</b> [21] 6/19 6/20 19/14 29/4 36/16 36/24 44/7 53/19 119/16 119/22 128/4 133/4 137/4 137/9 137/13 147/12 147/14 147/14 170/21 174/12 175/11 <b>March</b> [10] 66/23 77/2 86/19 89/12 159/7 187/4
<b>look...</b> [20] 76/3 80/4 80/7 80/20 91/12 97/22 106/22 127/24 131/14 155/25 156/15 159/20 163/7 179/17 181/16 185/18 187/16 188/13 188/20 194/4 <b>looked</b> [18] 17/16 18/19 24/6 25/12 25/24 33/1 33/2 33/13 44/11 67/13 69/24 86/6 87/16 101/10 101/11 129/18 193/4 194/11 <b>looking</b> [20] 17/15 21/18 31/19 32/7 56/11 57/10 68/9 89/11 94/7 103/15 106/23 107/5 107/5 112/3 166/19 173/13 174/20 182/14 183/20 197/24 <b>looks</b> [4] 25/6 71/18 84/1 156/11 <b>lose</b> [1] 50/23 <b>lot</b> [22] 27/14 31/12 37/1 44/11 46/2 49/16 52/12 65/23 91/17 95/25 97/4 105/10 105/14 136/16 169/15 177/25 182/20 184/1 185/4 187/10 188/5 190/25 <b>low</b> [16] 118/20 123/5 126/14 126/18 132/1 134/21 136/1 157/25 158/3 158/9 158/22 159/8 160/25 161/21 162/23 170/2 <b>low-speed</b> [6] 123/5 157/25 158/3 158/9 161/21 162/23 <b>lower</b> [5] 125/2 157/22 161/24 166/1 169/1 <b>lunch</b> [1] 116/2 <b>luxury</b> [2] 40/16 166/7 <b>lying</b> [1] 190/9	<b>machination</b> [2] 113/12 113/24 <b>machinations</b> [2] 67/12 152/23 <b>Mack</b> [1] 111/6 <b>made</b> [32] 24/20 24/22 24/23 28/17 31/17 60/3 61/22 63/2 63/19 63/20 78/17 88/4 95/20 104/9 105/24 107/13 108/8 108/20 111/17 114/24 124/1 133/18 153/21 153/22 157/8 157/13 161/22 162/6 162/10 162/19 163/23 173/24 <b>main</b> [1] 15/16 <b>maintain</b> [1] 40/19 <b>maintained</b> [1] 79/7 <b>maintenance</b> [2] 55/24 56/1 <b>major</b> [1] 59/2 <b>make</b> [35] 23/21 27/15 27/20 28/22 29/2 31/2 34/7 36/20 46/18 47/22 52/9 53/20 55/21 71/20 74/1 77/6 86/17 93/7 98/21 100/12 100/16 122/12 127/25 134/4 134/11 135/11 139/22 150/21 152/18 155/19 174/20 183/9 193/23 196/1 196/6 <b>maker</b> [1] 163/21 <b>makes</b> [5] 117/2 118/17 124/11 133/23 185/4 <b>making</b> [15] 11/6 95/25 97/2 97/12 105/3 105/24 108/13 108/16 109/23 111/7 111/13 149/19 164/4 192/22 196/9 <b>Malaysia</b> [1] 81/9	

<b>M</b>		
<b>March...</b> [4] 187/19 188/16 189/22 190/2	77/2 77/4 77/16 77/20 78/5 79/10 84/15 88/5 88/21 94/16 97/8 97/15 97/22 97/25 98/8 99/3	101/24 101/24 102/12 102/16 103/10 103/20 103/23 104/12 107/17 107/22 108/4 109/24 112/5
<b>March 10</b> [2] 86/19 190/2	99/7 99/12 104/7 106/13	112/13 112/18 113/1 113/22
<b>March 10th</b> [1] 66/23	108/4 108/9 108/21 112/4	113/24 114/7 114/11 114/20
<b>March 11</b> [3] 187/19 188/16 189/22	112/22 115/20 115/20 122/20 125/20 125/24	114/25 115/5 115/9 115/12 115/20 118/10 118/14
<b>March 11th</b> [1] 89/12	131/1 136/8 139/19 140/7	118/18 118/20 118/24 119/4
<b>March 2017</b> [1] 77/2	145/21 146/3 146/6 146/8	119/9 120/19 120/24 121/6
<b>Mark</b> [14] 50/22 78/20 108/19 108/25 109/7 112/9 112/12 112/24 113/1 113/6 116/21 118/3 125/10 136/25	150/8 153/10 154/5 154/18 156/9 156/18 157/2 159/23 160/10 162/24 165/8 182/12 182/13 184/15	121/11 121/17 122/11 122/14 122/24 123/4 123/10 123/16 123/23 124/5 124/8 124/14 124/16 124/20
<b>marked</b> [3] 54/13 72/7 72/8	184/17 186/8 187/1 188/10 189/9	124/22 125/1 126/14 126/17 127/1 129/6 130/8
<b>MARTIN</b> [1] 2/23	<b>maximum</b> [1] 189/6	130/25 131/5 131/20 132/1
<b>masks</b> [1] 200/9	<b>may</b> [18] 15/5 16/24 33/7	132/2 132/5 134/20
<b>master</b> [3] 27/19 28/23 47/13	34/21 67/7 67/16 77/14 111/5 111/6 113/19 134/1 145/6 158/17 171/20 174/18 186/18 195/8	135/22 135/24 135/25 137/3 140/21 141/7 141/12 141/15 141/20 141/24 142/4 142/8 143/19 147/5 150/6
<b>material</b> [4] 27/3 33/1 49/17 91/18	198/17	150/13 152/23 152/25
<b>materially</b> [3] 35/17 35/20 42/4	<b>maybe</b> [8] 15/9 50/5 58/4 72/14 78/5 86/16 166/19 173/2	153/3 153/11 153/16 156/17 157/1 157/5 157/12 157/21 157/25 158/4 158/9 158/17
<b>materials</b> [9] 20/17 26/20 27/5 27/6 32/16 42/2 42/4 131/1 152/4	<b>MBA</b> [1] 172/1	158/22 159/7 159/11
<b>math</b> [2] 187/7 188/17	<b>MCAS</b> [182] 15/24 16/12	160/18 161/21 161/24
<b>matter</b> [2] 56/14 200/7	16/18 32/11 32/12 32/20	162/16 162/23 162/24
<b>matters</b> [4] 25/8 25/13 29/4 72/21	32/21 32/25 33/2 33/4	164/25 167/9 167/24
<b>MAX</b> [103] 15/24 16/5 16/13 16/20 17/10 17/15 17/19 18/21 19/21 24/7 25/19 27/1 32/13 32/14 33/24 35/15 35/17 36/18 39/21 39/22 41/11 43/3 46/9 46/12 47/12 47/16 49/13 51/15 53/7 53/20 58/20 60/20 63/4 63/11 64/5 66/24 69/20 70/9 72/11 72/21 73/9 75/8 75/13 75/17 76/11 76/13	33/7 33/10 33/22 33/24 34/4 34/5 35/16 38/21 39/3 41/10 41/15 42/3 43/2 58/21 59/5 59/13 59/16 60/3 60/5 61/6 61/8 61/22 62/24 63/4 63/11 66/8 67/7 67/10 67/12 69/6 70/11 74/17 75/8 75/14 76/1 79/8 79/9 84/24 85/25 86/2 87/10 87/12 96/17 98/1 99/1 101/9 101/13 101/18 101/21	168/14 168/22 169/1 183/4 183/7 183/8 183/13 184/3 185/9 185/11 185/20 189/5 189/5 189/6 189/21 191/23 192/8
		<b>MCAS's</b> [9] 74/20 121/21 150/22 157/20 158/19 164/17 168/20 169/21 170/2
		<b>McGUIREWOODS</b> [3] 2/17 4/23 5/1
		<b>me</b> [47] 21/9 23/4 26/12

**M**

**me...** [44] 30/21 32/4  
41/9 43/9 43/25 45/19  
50/5 53/5 56/21 56/21  
62/11 70/16 85/3 88/10  
89/20 92/16 93/25 98/3  
100/12 110/12 110/19 124/6  
128/8 128/15 136/12  
139/13 142/10 142/22  
153/23 163/8 171/13 171/13  
176/21 180/5 181/21 181/25  
189/7 193/24 194/22  
195/22 196/22 199/2  
199/7 199/8  
**MEACHAM** [3] 1/16 5/7  
6/24  
**mean** [11] 14/18 14/19  
30/21 37/10 95/21 109/18  
138/1 139/5 139/14 198/14  
198/21  
**meaningfully** [1] 167/11  
**means** [2] 32/20 44/1  
**meant** [3] 27/10 184/4  
191/4  
**mechanically** [1] 135/11  
**medical** [1] 56/13  
**medical** [1] 55/20  
**meet** [14] 9/17 10/5 10/22  
10/25 11/5 11/5 11/8 11/10  
22/13 23/20 23/25 24/2  
46/20 93/21  
**meeting** [3] 22/18 156/8  
156/11  
**meetings** [3] 149/23 150/2  
150/7  
**member** [4] 16/19 56/15  
148/6 164/3  
**members** [11] 20/3 48/7  
49/7 55/19 56/19 62/5  
65/1 105/21 184/14 195/20  
195/21  
**memo** [3] 191/20 191/20

191/20  
**memory** [10] 40/18 40/23  
40/24 41/1 64/21 64/22  
146/21 166/6 166/9 189/2  
**mention** [2] 18/19 141/6  
**mentioned** [17] 24/5 24/5  
29/19 30/18 33/7 35/24  
39/7 39/15 45/4 46/3  
46/8 49/11 76/7 142/18  
166/12 171/23 194/3  
**mentioning** [2] 18/1 31/23  
**mentions** [2] 42/11 140/20  
**message** [5] 65/5 66/8  
78/3 78/17 160/18  
**met** [5] 44/14 93/23 94/1  
106/7 178/21  
**method** [1] 195/23  
**methodologies** [1] 57/11  
**methodology** [2] 57/13  
151/25  
**mid** [2] 64/24 120/10  
**mid-motion** [1] 64/24  
**mid-paragraphs** [1] 120/10  
**might** [25] 5/17 6/3 12/4  
13/17 20/24 29/20 30/1  
37/16 41/9 56/19 71/9  
76/5 78/5 81/7 86/6 104/8  
133/11 155/7 164/16 171/14  
176/21 179/20 185/5 192/5  
192/6  
**millions** [3] 50/12 50/25  
51/6  
**mind** [6] 16/23 78/20  
113/18 127/13 191/22  
192/17  
**mind-tricked** [1] 78/20  
**minimum** [7] 22/9 22/18  
23/21 23/22 46/20 148/4  
181/14  
**minimums** [1] 22/12  
**Ministry** [2] 19/19 67/18  
**minor** [1] 163/21

**minute** [4] 85/11 156/1  
158/8 173/13  
**minutes** [5] 66/24 84/7  
91/16 135/8 188/3  
**misleading** [5] 33/21 92/6  
126/25 127/11 131/2  
**Miss** [1] 106/9  
**Miss Klein's** [1] 106/9  
**missed** [1] 93/8  
**missing** [6] 59/2 127/24  
129/9 130/3 131/7 144/14  
**misstates** [1] 142/7  
**mitigate** [1] 61/24  
**mitigation** [1] 59/15  
**model** [5] 28/22 46/18  
53/20 55/21 145/22  
**models** [1] 60/21  
**MOM** [2] 66/7 191/19  
**moment** [9] 24/6 35/24  
42/25 49/11 76/3 115/25  
136/11 145/6 187/16  
**Monday** [3] 197/7 198/5  
198/20  
**monitoring** [1] 175/20  
**month** [7] 66/4 72/19 77/2  
133/4 134/9 185/23 186/15  
**months** [6] 17/19 55/22  
139/11 185/21 187/7 188/12  
**more** [49] 8/4 20/13 20/15  
22/7 25/16 29/3 29/21  
30/1 32/6 40/5 42/24  
47/11 49/2 50/8 60/3  
60/14 65/23 67/9 71/11  
72/1 74/16 76/9 84/6 88/2  
88/23 91/16 103/7 103/8  
103/9 103/9 103/9 107/16  
115/16 133/21 147/5 151/9  
154/1 154/23 164/7 174/9  
182/20 185/20 187/7  
188/2 189/19 189/20  
192/11 192/12 197/14  
**morning** [8] 4/22 5/2 5/9

<b>M</b>	<b>Mr. Cassell [13]</b> 7/8 7/12 94/12 94/14 94/23 113/22 132/19 155/17 172/25 196/12 196/19 196/20 199/1 <b>Mr. Cassell's [2]</b> 8/22 10/4 <b>Mr. Fortner [34]</b> 78/16 79/3 116/23 117/8 118/8 118/13 119/3 119/8 120/17 120/23 121/16 123/3 123/15 124/3 124/7 124/23 126/21 127/16 129/10 130/4 134/25 136/4 138/21 140/6 141/11 141/15 141/19 141/24 142/3 142/23 143/7 143/13 143/15 185/14 <b>Mr. Jacob [1]</b> 142/11 <b>Mr. Jacobs [3]</b> 9/16 93/15 115/15 <b>Mr. Keyes [17]</b> 15/16 93/14 93/18 93/20 145/16 147/7 148/9 149/6 151/16 161/19 167/1 167/22 188/5 197/13 197/14 198/11 198/15 <b>Mr. Keyes' [1]</b> 21/19 <b>Mr. Loffing [3]</b> 136/24 137/3 137/8 <b>Mr. Meacham [1]</b> 6/24 <b>Ms. [6]</b> 125/13 125/15 197/19 198/10 198/16 198/22 <b>Ms. Klein [1]</b> 125/13 <b>Ms. Klein's [1]</b> 125/15 <b>Ms. Norton [4]</b> 197/19 198/10 198/16 198/22 <b>much [12]</b> 11/12 37/13 38/17 46/17 57/14 110/10 125/2 165/25 166/22 172/10 192/25 198/7 <b>multi [2]</b> 66/8 160/18	<b>multi-operator [2]</b> 66/8 160/18 <b>multiple [6]</b> 12/2 61/25 69/5 73/24 153/25 197/17 <b>Mulugeta [1]</b> 4/15 <b>my [64]</b> 10/9 10/19 12/6 12/8 12/12 12/16 12/19 16/3 16/10 16/16 16/22 17/18 17/22 20/9 21/3 36/3 36/4 45/14 50/24 67/11 75/12 77/25 93/7 93/20 96/22 103/13 108/18 113/11 113/18 113/24 114/22 115/23 117/10 119/1 124/21 125/1 125/16 128/23 133/2 137/23 151/8 151/21 164/7 170/18 171/25 172/1 173/6 175/21 176/2 176/4 176/4 176/15 181/25 183/16 183/22 183/25 185/1 187/7 188/17 195/12 198/23 198/24 200/7 200/11
		<b>N</b> <b>N.W [1]</b> 2/21 <b>Nahari [1]</b> 66/25 <b>name [6]</b> 13/19 13/19 93/20 111/16 111/21 136/23 <b>named [2]</b> 125/12 136/20 <b>narrow [4]</b> 5/21 5/24 11/3 15/9 <b>NASA [1]</b> 179/21 <b>Nasional [1]</b> 54/16 <b>national [7]</b> 29/9 44/18 45/21 46/3 46/7 83/19 177/10 <b>nationally [1]</b> 68/1 <b>nature [10]</b> 19/5 22/25 40/5 41/16 85/13 114/9 173/22 174/21 179/13 182/3 <b>navigation [2]</b> 175/8 175/8

N		
<b>near</b> [3] 53/8 53/14 66/25	140/19 156/11 180/6 187/7	87/21
<b>necessarily</b> [2] 74/1	<b>nine-day</b> [1] 156/11	<b>normally</b> [3] 40/1 71/22
127/20	<b>no</b> [110] 1/5 5/24 6/4 10/7	181/11
<b>necessary</b> [4] 50/13 128/6	11/24 14/16 14/17 15/12	<b>NORTHERN</b> [3] 1/2 1/17
190/15 190/19	15/13 17/25 20/21 21/14	200/18
<b>necessity</b> [1] 48/11	31/10 33/6 39/2 59/13	<b>Norton</b> [6] 63/23 65/23
<b>need</b> [22] 7/11 7/15 9/8	59/15 66/15 75/18 78/13	197/19 198/10 198/16
12/18 12/21 15/1 35/4	93/6 94/2 94/19 94/22	198/22
75/17 78/5 110/22 110/23	94/23 95/3 95/7 95/8	<b>nose</b> [7] 61/10 69/5
128/8 133/21 135/10 153/3	95/10 95/13 97/16 97/20	102/20 103/24 120/25
159/21 163/2 163/10	97/24 98/6 98/12 98/19	132/3 166/4
163/20 164/8 181/15	99/8 99/13 99/15 100/1	<b>nose-down</b> [4] 61/10 69/5
187/22	100/3 100/5 100/6 100/10	102/20 103/24
<b>needed</b> [8] 34/12 34/18	101/3 101/4 101/16 101/19	<b>not</b> [210]
34/18 44/3 70/23 81/15	101/22 106/3 106/6 106/9	<b>note</b> [3] 7/17 7/25 58/8
134/11 186/25	106/15 106/18 109/2 113/4	<b>notes</b> [2] 84/7 88/23
<b>needs</b> [2] 31/13 65/3	113/8 118/7 122/23 123/14	<b>nothing</b> [12] 11/3 11/4
<b>neither</b> [2] 161/4 161/8	125/11 127/9 135/15 137/7	120/23 121/1 122/6 129/18
<b>never</b> [21] 48/3 143/12	137/20 138/15 139/15	141/10 143/6 169/24 196/2
143/13 143/21 145/24	140/5 141/14 141/18 141/23	199/18 199/20
146/2 146/5 146/18 146/25	142/2 142/22 143/3 143/15	<b>notice</b> [4] 72/17 74/14
147/22 147/24 148/9	143/22 144/4 144/8 144/9	164/1 188/16
148/18 149/10 149/13	146/13 146/20 147/24	<b>noticed</b> [3] 20/16 76/8
149/16 149/19 149/22	148/11 149/15 149/18	93/8
150/12 162/23 170/19	149/21 150/24 151/18	<b>notification</b> [5] 28/25
<b>new</b> [23] 1/21 2/8 2/8	152/17 155/11 156/20	89/7 164/1 187/18 188/15
26/15 27/13 27/17 28/6	162/5 163/3 163/14 167/21	<b>November</b> [4] 66/6 66/7
28/11 47/15 47/20 47/21	168/16 170/5 170/8 170/15	160/6 160/17
47/25 48/12 50/2 50/2	170/23 189/4 193/6 194/1	<b>November 10</b> [1] 66/7
85/25 87/10 163/22 176/6	194/14 194/15 194/16	<b>November 10th</b> [1] 160/17
177/21 180/2 181/2 187/12	195/2 195/24 197/13 198/3	<b>November 6</b> [1] 66/6
<b>next</b> [21] 19/17 21/7 32/4	<b>No.</b> [2] 4/5 26/11	<b>now</b> [77] 15/16 17/23
32/9 42/25 43/1 58/6	<b>No.</b> 10 [1] 26/11	20/20 21/7 22/20 26/8
60/15 65/18 69/17 75/5	<b>No. 4:21-cr-05</b> [1] 4/5	30/4 32/4 32/7 33/4
77/13 78/1 107/25 170/10	<b>nobody</b> [1] 6/21	33/18 36/1 37/15 39/7
180/13 181/6 185/21 195/4	<b>non</b> [3] 39/5 39/25 70/11	41/22 42/23 46/8 47/11
195/5 195/15	<b>non-normal</b> [3] 39/5 39/25	50/19 51/12 51/18 52/23
<b>NG</b> [4] 69/19 75/17 77/16	70/11	53/12 54/12 55/11 61/1
146/6	<b>none</b> [1] 78/14	62/11 63/22 64/19 66/2
<b>nice</b> [2] 93/21 199/23	<b>nor</b> [2] 161/4 163/16	68/23 78/4 78/7 79/20
<b>nine</b> [6] 90/5 140/13	<b>normal</b> [7] 30/15 39/5	84/4 85/21 87/6 88/1 88/2
	39/24 39/25 70/11 70/11	88/24 95/16 97/7 99/5

<b>N</b>	150/10 151/8 158/24 168/7 <b>objections</b> [2] 82/22 198/3 <b>objective</b> [1] 76/10 <b>objectives</b> [1] 44/15 <b>obligation</b> [2] 11/24 11/25 <b>obligations</b> [2] 86/1 87/11 <b>observe</b> [1] 44/13 <b>obtain</b> [1] 10/19 <b>obvious</b> [2] 34/21 199/7 <b>obviously</b> [15] 6/3 7/12 36/3 39/3 43/6 46/9 50/13 50/15 75/7 85/4 91/17 117/3 159/1 189/19 196/13 <b>occasion</b> [2] 20/14 20/22 <b>occurred</b> [5] 24/18 60/6 90/2 112/22 128/21 <b>occurs</b> [2] 21/9 53/14 <b>October</b> [5] 18/22 52/24 53/7 62/16 84/14 <b>October 29th</b> [3] 18/22 52/24 84/14 <b>odd</b> [1] 26/3 <b>off</b> [10] 16/21 53/13 84/15 84/20 84/24 86/6 86/18 86/20 177/8 195/11 <b>offense</b> [4] 7/14 127/18 128/7 197/13 <b>offer</b> [16] 13/9 15/18 25/2 47/8 57/20 68/13 68/17 72/5 82/7 88/24 92/25 146/8 147/3 149/6 190/16 190/20 <b>offered</b> [2] 51/4 173/5 <b>offering</b> [9] 25/3 25/4 26/5 47/2 68/14 69/13 73/3 91/7 92/13 <b>offers</b> [1] 144/9 <b>office</b> [14] 121/22 122/2 122/20 122/25 148/13 148/19 148/23 149/3 176/13 177/5 177/11 178/6
<b>O</b>	178/12 178/20 <b>OFFICES</b> [1] 2/10 <b>official</b> [2] 73/12 200/18 <b>official's</b> [1] 198/13 <b>often</b> [5] 52/14 95/25 97/1 144/16 144/22 <b>oh</b> [6] 30/17 109/2 156/25 158/14 171/23 179/8 <b>okay</b> [54] 6/13 6/24 8/15 11/11 12/20 25/15 82/21 84/8 94/11 99/16 102/15 109/4 109/17 109/21 110/24 110/25 111/22 113/19 117/4 118/6 120/12 120/22 122/16 124/17 126/6 128/25 130/14 131/11 132/14 132/16 135/17 138/17 139/16 142/16 142/19 143/1 143/5 156/25 158/15 159/14 163/7 163/18 164/23 168/18 170/5 170/18 171/22 179/6 187/22 195/7 195/7 195/9 195/25 199/22 <b>Oklahoma</b> [4] 176/13 176/15 176/17 180/18 <b>old</b> [1] 47/21 <b>omission</b> [5] 157/5 167/24 168/14 169/20 170/1 <b>omissions</b> [3] 33/22 33/23 92/7 <b>omitted</b> [2] 63/10 157/12 <b>on</b> [318] <b>once</b> [20] 31/3 38/7 40/8 40/23 53/14 59/10 59/22 62/4 63/9 69/14 75/12 75/23 83/2 83/9 84/23 84/25 87/18 110/13 142/13 192/20 <b>one</b> [90] 6/7 7/24 11/21 12/3 12/4 12/10 19/25 21/1 21/14 25/18 29/3 29/15

<b>O</b>		
<b>one... [78]</b> 31/4 31/23 31/24 35/12 40/7 41/1 41/19 43/20 52/13 55/19 57/8 58/9 61/18 61/20 67/25 71/22 75/5 75/15 77/13 77/18 78/1 78/21 83/4 83/11 85/11 88/2 89/11 89/12 90/10 91/15 91/19 100/7 107/15 110/2 111/15 116/6 117/7 123/4 130/2 130/11 131/6 132/4 133/11 133/23 134/24 135/3 137/4 138/10 140/19 141/20 144/11 145/6 150/5 152/22 153/17 154/1 156/4 157/4 161/13 174/11 174/12 174/15 177/17 179/16 179/24 180/3 182/18 182/19 183/24 185/2 185/6 188/17 192/15 196/21 196/23 197/7 197/16 197/19 <b>ones [3]</b> 61/1 177/21 182/21 <b>ongoing [2]</b> 130/10 188/23 <b>online [2]</b> 33/2 47/16 <b>only [26]</b> 12/3 65/2 75/17 81/14 98/2 98/4 102/10 103/11 104/22 108/10 118/8 118/18 119/9 122/5 123/2 126/19 127/20 131/6 131/25 138/9 140/19 141/16 141/20 157/18 176/10 186/4 <b>onto [1]</b> 76/21 <b>oOo [1]</b> 4/3 <b>open [2]</b> 195/22 198/5 <b>operate [18]</b> 47/25 53/19 98/22 99/1 101/25 102/9 102/13 118/20 126/18 134/21 136/1 158/22 159/8	160/19 175/23 178/14 178/18 190/20 <b>operated [6]</b> 33/10 52/9 98/6 164/5 177/22 179/11 <b>operates [1]</b> 190/17 <b>operating [3]</b> 28/24 36/2 42/18 <b>operation [5]</b> 38/2 38/6 50/11 60/3 70/11 <b>operational [7]</b> 150/22 157/21 158/19 164/18 168/20 169/21 170/2 <b>operations [10]</b> 24/3 27/25 39/24 39/25 39/25 40/9 66/6 159/17 173/22 178/7 <b>operator [17]</b> 23/24 23/25 27/19 28/5 29/7 38/7 38/15 48/6 50/3 64/13 66/8 160/18 166/12 167/16 175/23 179/16 181/13 <b>operator's [2]</b> 160/1 181/14 <b>operators [25]</b> 16/5 25/19 31/19 37/18 49/25 90/4 90/5 90/9 149/7 154/4 154/4 154/18 159/23 160/10 167/13 167/18 167/19 173/20 173/21 174/6 176/17 176/18 178/17 191/21 193/1 <b>opine [1]</b> 130/17 <b>opining [2]</b> 129/5 196/17 <b>opinion [56]</b> 8/3 8/7 8/12 10/12 15/21 16/3 16/10 16/17 16/22 25/23 32/5 32/9 42/8 42/25 43/1 43/6 51/4 74/1 84/16 85/22 87/7 96/12 96/16 96/22 97/5 104/25 105/19 123/8 130/16 131/13 131/19 137/23 138/8 144/6 144/9	145/8 152/3 153/7 153/9 153/15 154/4 157/7 157/18 158/2 165/2 167/23 168/3 168/13 169/16 169/17 169/18 169/24 183/2 192/10 193/25 194/12 <b>opinion that [1]</b> 145/8 <b>opinions [38]</b> 15/18 16/23 16/25 17/6 17/24 18/15 24/14 25/3 25/4 25/17 25/18 26/5 47/2 47/8 58/14 58/23 59/7 59/18 68/14 69/12 73/2 73/4 75/11 76/18 77/10 92/12 117/15 146/8 147/3 149/6 151/19 152/3 154/3 157/5 190/17 190/20 196/11 196/12 <b>opponent [1]</b> 93/1 <b>opportunities [1]</b> 65/11 <b>opportunity [18]</b> 7/7 23/9 25/15 49/8 64/17 64/22 64/23 65/2 80/23 82/11 83/5 83/12 97/8 97/22 165/21 166/5 166/11 166/16 <b>opposed [5]</b> 30/2 77/17 150/15 162/7 196/8 <b>opposing [1]</b> 89/4 <b>options [1]</b> 192/9 <b>or [182]</b> 6/14 9/21 10/6 11/5 16/18 18/13 18/14 21/5 21/6 22/10 22/16 22/21 23/12 23/24 23/24 24/5 26/6 27/13 28/7 29/9 29/21 29/25 30/5 30/7 31/6 31/18 34/6 34/6 34/19 34/20 35/7 35/22 39/5 39/9 39/12 40/7 41/4 41/4 41/5 44/25 45/23 45/25 45/25 47/20 47/21 47/23 48/7 48/10 48/10 48/23 50/16 50/18 51/3

<b>O</b>		
<b>or... [129]</b>	56/17 56/18 56/23 57/8 57/15 58/3 59/25 59/25 62/21 64/13 65/1 65/2 65/18 69/8 74/12 76/3 76/24 77/23 78/20 79/11 83/24 84/7 85/1 85/1 88/2 88/3 89/8 89/9 89/13 92/16 97/11 97/14 98/18 101/17 102/16 103/3 106/10 106/16 109/10 110/22 114/6 117/12 119/3 119/5 119/8 120/17 120/23 121/12 121/16 121/18 123/15 123/24 124/7 126/4 126/8 127/7 127/17 127/22 127/22 127/24 128/18 129/20 131/14 133/4 134/9 137/17 139/23 140/2 140/6 141/11 141/15 141/18 141/19 141/24 142/3 142/23 143/7 143/15 143/15 145/21 146/11 147/1 148/18 150/5 153/22 153/24 154/1 155/6 161/8 163/4 163/14 163/15 164/4 165/14 166/24 168/4 168/16 173/4 174/19 176/6 178/8 178/11 178/23 179/10 179/10 179/19 179/19 180/6 181/12 182/5 182/6 182/22 183/7 183/13 183/15 183/19 188/15 190/12 191/3 191/12 192/6 195/1 195/4 195/4 195/22 196/7 197/7 197/17 200/9 <b>order [8]</b>	22/22 23/25 40/19 153/2 168/18 178/17 188/9 196/21 <b>orders [1]</b> 22/24 <b>ordinarily [1]</b> 73/3 <b>ordinary [1]</b> 186/2
<b>organization [8]</b>	25/11 49/18 53/25 56/23 147/11 175/7 179/17 181/10	65/18 76/6 77/20 78/6 92/4 92/16 113/18 128/4 130/9 130/22 131/22 133/5
<b>organizational [2]</b>	56/21 56/22	143/14 166/7 166/13 171/5 173/25 174/11 174/24
<b>organizations [2]</b>	36/22 37/4	177/2 178/14 179/15 185/19 191/22 195/22 196/18
<b>originally [4]</b>	102/20 103/11 104/2 124/22	<b>outcome [1]</b> 130/6
<b>Orleans [1]</b>	177/21	<b>outset [3]</b> 54/15 99/3 99/7
<b>other [54]</b>	6/2 7/24 9/5 12/18 22/24 23/20 24/11 24/23 26/16 36/14 37/1 41/6 44/8 46/11 46/11 52/14 52/17 52/17 53/19 57/12 64/6 66/16 71/21 74/11 76/9 81/17 83/23 86/4 87/14 89/13 89/14 89/25 93/23 99/5 99/9 101/11 111/6 118/13 118/24 122/6 133/24 137/4 145/22 147/20 150/6 150/22 150/24 154/1 161/4 161/8 195/23 196/23 198/16 199/3	<b>outside [1]</b> 99/5 <b>over [11]</b> 25/9 36/4 43/21 51/21 56/18 66/3 166/15 172/22 175/10 195/17 197/7
<b>others [4]</b>	73/12 73/13 137/5 140/21	<b>overall [2]</b> 61/3 61/4 <b>overcome [2]</b> 60/5 62/6 <b>overrule [2]</b> 82/21 110/20 <b>overruled [8]</b> 68/20 74/3 82/15 93/11 102/3 132/14 135/14 142/16
<b>ought [3]</b>	11/20 12/16 199/2	<b>overseas [1]</b> 91/8 <b>overseeing [2]</b> 176/8 178/6 <b>oversight [7]</b> 73/9 177/10 178/10 178/20 179/19 183/19 188/23
<b>our [30]</b>	4/19 5/7 5/21 6/4 7/25 8/12 8/21 8/25 9/3 9/5 9/6 9/12 9/15 9/19 9/20 13/24 74/8 80/25 88/7 93/13 110/7 116/7 145/7 178/6 178/20 179/15 196/5 197/9 198/4 198/16	<b>own [19]</b> 30/3 51/8 52/7 63/19 74/16 78/6 98/21 107/16 112/19 113/4 113/5 152/7 152/20 155/19 155/22 155/22 180/1 192/21 194/5
<b>out [49]</b>	6/6 7/16 8/18 10/12 28/19 28/24 29/13 31/2 37/18 37/21 38/18 39/16 44/25 45/22 49/21 49/24 53/17 53/21 55/6 56/10 57/4 61/7 65/13	<b>owned [1]</b> 28/22 <b>owner [1]</b> 56/23
<b>P</b>		
<b>P.C [1]</b>	2/10	
<b>p.m [5]</b>	80/18 116/11 187/24 187/25 199/24	
<b>packed [1]</b>	197/2	
<b>page [53]</b>	9/12 14/2 55/5 55/14 61/5 61/20 69/2	

<b>P</b>		
<b>page...</b> [46] 69/17 69/18 70/7 70/22 72/9 72/17 73/6 73/7 74/14 75/6 75/15 75/15 76/8 77/1 78/1 78/15 83/7 83/14 88/25 89/1 89/1 90/5 94/4 94/9 106/22 107/1 107/5 107/5 107/6 107/10 107/11 107/11 111/23 140/16 140/25 140/25 141/2 141/3 156/1 156/2 159/20 160/22 163/7 187/20 189/13 194/4	22/3 22/4 22/7 25/24 29/14 43/23 44/10 46/4 46/23 49/20 52/16 94/17 97/11 97/14 103/3 104/4 104/15 104/17 113/2 113/11 115/7 146/18 161/2 172/21 173/7 174/5 175/10 175/20 181/7 182/1	<b>pathology</b> [1] 56/13 <b>patience</b> [2] 74/7 91/17 <b>patient</b> [1] 84/6 <b>PATRICK</b> [2] 2/20 4/24 <b>Patrol</b> [1] 179/22 <b>PAUL</b> [2] 2/3 4/7 <b>pending</b> [1] 110/9 <b>Pennsylvania</b> [1] 2/21 <b>people</b> [26] 23/17 29/16 31/14 34/24 37/6 38/8 38/24 43/21 44/8 50/13 62/9 62/16 76/21 85/7 86/13 87/24 92/21 95/25 97/1 102/15 105/22 138/11 138/24 174/13 176/4 185/19
<b>pages</b> [12] 9/6 17/20 17/23 40/7 55/13 73/11 75/7 84/7 88/23 91/19 94/4 107/8	173/23 <b>participating</b> [1] 6/16 <b>participation</b> [1] 8/21 <b>particular</b> [33] 7/23 8/7 8/11 14/8 20/12 25/22 26/8 29/20 33/11 40/11 46/1 50/20 52/23 55/21 58/16 59/21 62/12 62/13 65/15 67/14 69/12 96/1 96/4 106/17 109/6 121/17 139/3 139/3 144/17 177/18 183/24 186/11 196/6	<b>percent</b> [5] 48/13 48/13 48/14 83/6 83/13 <b>performed</b> [1] 137/4 <b>performs</b> [1] 148/15 <b>perhaps</b> [4] 30/5 53/22 80/22 165/24
<b>paragraph</b> [30] 26/11 27/3 33/20 35/10 35/13 41/23 50/20 50/21 51/1 53/6 55/5 73/7 80/22 107/11 126/23 127/4 127/10 127/23 128/13 128/16 128/24 130/20 131/9 132/13 156/15 156/21 156/21 158/15 184/11 196/16	129/4 <b>parties</b> [5] 6/11 10/18 16/24 66/16 199/10 <b>parts</b> [7] 21/21 21/23 26/18 37/7 133/24 147/12 147/14	<b>period</b> [2] 66/4 185/23 <b>periodic</b> [2] 176/1 181/24 <b>permissible</b> [1] 73/25 <b>permission</b> [9] 4/13 9/23 21/15 52/25 66/19 72/6 80/1 89/3 91/20
<b>paragraphs</b> [3] 26/3 120/10 128/4	<b>party</b> [3] 8/24 92/25 170/22	<b>permit</b> [1] 40/16 <b>permitted</b> [2] 116/7 155/22
<b>paralegal</b> [1] 5/8	<b>pass</b> [2] 133/21 181/5	<b>person</b> [1] 112/12
<b>parallels</b> [1] 182/18	<b>passed</b> [2] 11/13 90/4	<b>personally</b> [1] 45/6
<b>parameters</b> [3] 104/11 125/1 185/11	<b>passenger</b> [1] 16/19	<b>personnel</b> [2] 29/25 55/18
<b>paraphrase</b> [1] 99/17	<b>passengers</b> [11] 53/9 66/25 84/12 84/17 84/21	<b>persons</b> [1] 55/18
<b>parcel</b> [1] 10/16	85/4 85/12 86/21 86/24	<b>perspective</b> [2] 198/13 198/13
<b>Pardon</b> [1] 93/25	88/16 92/15	<b>pertaining</b> [1] 34/5
<b>pare</b> [1] 37/21	<b>path</b> [1] 99/11	<b>pertinent</b> [2] 128/21 193/22
<b>part</b> [36] 10/10 10/16 10/18 18/10 21/24 22/1		<b>phase</b> [1] 181/6
		<b>phases</b> [1] 181/5

<b>P</b>	<p><b>phenomenal</b> [1] 56/10</p> <p><b>PHILLIPS</b> [1] 2/23</p> <p><b>philosophy</b> [1] 35/2</p> <p><b>phrase</b> [3] 92/16 184/1 184/5</p> <p><b>pictures</b> [1] 195/1</p> <p><b>piece</b> [16] 30/7 56/12 59/2 125/4 126/17 126/19 129/9 130/2 130/4 130/11 131/6 134/24 135/3 138/10 138/11 185/6</p> <p><b>pieces</b> [4] 37/1 37/6 56/10 56/11</p> <p><b>pilot</b> [54] 8/2 26/19 35/4 37/23 39/20 40/16 42/1 43/19 46/23 48/2 51/14 63/24 65/1 74/16 75/23 76/10 76/23 77/3 77/17 80/15 103/5 107/17 109/19 109/23 109/23 111/13 127/16 127/16 127/17 128/18 140/20 141/6 142/25 145/19 145/25 146/2 148/4 149/4 163/17 166/13 166/14 166/16 166/23 172/4 172/17 172/17 173/4 173/4 173/22 176/6 176/10 183/18 189/1 197/9</p> <p><b>pilot's</b> [2] 103/4 198/12</p> <p><b>piloting</b> [1] 112/21</p> <p><b>pilots</b> [48] 19/4 22/11 23/23 24/1 28/11 31/16 34/22 37/16 39/16 41/13 47/24 48/7 56/4 60/11 62/23 64/8 64/17 70/9 71/10 75/16 76/19 77/16 77/20 78/13 107/16 107/21 108/15 109/13 109/15 109/16 111/5 111/6 114/10 117/24 126/7 126/8 144/12</p> <p><b>158/3 161/13 161/16 165/19</b></p> <p><b>167/2 169/12 175/18 176/1</b></p> <p><b>176/6 193/5 194/6</b></p> <p><b>pitch</b> [1] 41/14</p> <p><b>place</b> [7] 31/5 57/1 85/4 97/9 97/23 98/22 104/6</p> <p><b>placed</b> [1] 61/9</p> <p><b>placing</b> [1] 49/6</p> <p><b>plaintiffs'</b> [3] 3/4 3/15 82/5</p> <p><b>plane</b> [41] 39/9 53/13 60/20 84/20 85/4 85/10 85/17 86/6 86/9 86/18 102/19 103/24 114/13 114/17 114/19 114/23 114/24 120/25 125/18 126/12 129/4 129/12 129/17 131/22 131/25 132/3 134/16 134/20 136/17 137/12 137/17 137/18 138/22 139/3 143/24 144/6 144/15 144/17 144/21 144/21 170/24</p> <p><b>planes</b> [5] 46/11 130/13 137/21 145/3 190/5</p> <p><b>planning</b> [3] 15/18 171/4 197/3</p> <p><b>plans</b> [1] 189/14</p> <p><b>platform</b> [1] 179/10</p> <p><b>play</b> [3] 6/3 41/20 131/22</p> <p><b>played</b> [5] 67/7 67/10 75/8 108/4 158/17</p> <p><b>pleading</b> [1] 196/18</p> <p><b>please</b> [11] 5/13 13/6 13/19 107/2 110/25 132/17 135/18 142/20 169/23 180/4 198/1</p> <p><b>plus</b> [1] 173/21</p> <p><b>POI</b> [1] 28/8</p> <p><b>point</b> [44] 6/6 6/13 6/15 6/22 7/11 14/24 32/12</p> <p><b>32/21 34/21 44/2 70/3</b></p> <p><b>70/19 84/22 84/22 84/25</b></p> <p><b>91/6 93/5 110/2 122/4</b></p> <p><b>126/13 126/15 129/23</b></p> <p><b>129/24 130/10 132/1 132/5</b></p> <p><b>132/19 132/25 133/6</b></p> <p><b>133/17 133/25 134/4</b></p> <p><b>134/22 134/24 136/9</b></p> <p><b>150/11 172/10 174/5</b></p> <p><b>179/24 185/20 192/2</b></p> <p><b>192/15 195/3 196/18</b></p> <p><b>pointed</b> [4] 8/18 160/1 160/13 160/13</p> <p><b>points</b> [3] 74/8 76/7 112/3</p> <p><b>Policy</b> [1] 179/3</p> <p><b>population</b> [1] 174/4</p> <p><b>portion</b> [2] 17/17 42/3</p> <p><b>portions</b> [3] 35/16 150/22 150/25</p> <p><b>position</b> [8] 7/19 8/13 8/22 10/23 11/2 102/20 110/16 183/6</p> <p><b>possible</b> [10] 135/11 155/5 164/15 164/21 167/8 167/10 177/19 192/16 192/18 195/22</p> <p><b>post</b> [2] 130/20 131/8</p> <p><b>post-Indonesian</b> [1] 131/8</p> <p><b>post-Lion</b> [1] 130/20</p> <p><b>poster</b> [1] 195/2</p> <p><b>potential</b> [2] 110/8 153/16</p> <p><b>potentially</b> [5] 39/13 74/18 190/11 194/6 194/10</p> <p><b>powerful</b> [1] 83/17</p> <p><b>PowerPoint</b> [4] 138/20 139/6 139/6 139/18</p> <p><b>practical</b> [3] 45/24 51/25 177/16</p> <p><b>practices</b> [1] 179/12</p> <p><b>pre</b> [2] 40/3 130/20</p> <p><b>pre-Ethiopian</b> [1] 130/20</p> <p><b>pre-takeoff</b> [1] 40/3</p>
----------	--

<b>P</b>	<p>preceding [1] 19/25</p> <p>precious [1] 76/5</p> <p>precisely [1] 115/16</p> <p>precision [1] 115/16</p> <p>predecessor [1] 69/20</p> <p>prediction [1] 198/24</p> <p>preeminent [1] 31/24</p> <p>preliminary [4] 5/16 20/1 90/3 133/19</p> <p>premise [1] 131/9</p> <p>prepared [8] 7/22 8/12 9/25 26/1 55/11 67/17 140/10 199/10</p> <p>preparing [4] 25/25 54/18 58/13 125/9</p> <p>prescribed [1] 200/13</p> <p>presence [1] 56/17</p> <p>present [4] 11/16 15/1 85/21 87/6</p> <p>presentation [4] 19/2 127/2 130/23 138/20</p> <p>presented [13] 7/11 9/2 9/14 12/3 18/9 29/13 108/11 150/14 151/21 151/23 156/23 196/12 196/22</p> <p>presenting [1] 14/25</p> <p>preservation [1] 87/23</p> <p>preserving [3] 86/11 86/12 174/20</p> <p>press [5] 3/25 91/25 92/4 159/10 159/13</p> <p>presumably [1] 10/13</p> <p>pretty [8] 46/17 49/14 55/12 57/13 65/15 67/5 83/17 197/2</p> <p>prevent [2] 53/23 165/13</p> <p>prevented [2] 62/5 183/15</p> <p>preventing [1] 165/15</p> <p>previous [2] 47/21 60/20</p> <p>previously [6] 13/10 87/15</p>	<p>93/23 94/1 132/10 188/14</p> <p>primarily [3] 54/11 181/2 188/23</p> <p>primary [2] 30/23 189/1</p> <p>principal [3] 24/3 27/25 40/9</p> <p>principles [1] 46/10</p> <p>prior [6] 159/6 159/16 161/3 161/7 162/21 165/7</p> <p>private [1] 103/5</p> <p>probable [4] 133/3 134/8 192/11 192/12</p> <p>probably [24] 29/21 34/9 37/5 76/2 133/6 133/7 133/17 133/20 134/9 134/10 136/2 152/21 157/15 159/9 161/22 162/1</p> <p>163/23 163/25 165/25</p> <p>166/19 182/15 196/21 199/2 199/15</p> <p>problem [1] 70/4</p> <p>problems [1] 60/4</p> <p>procedure [7] 23/17 147/1 160/2 160/14 161/12 161/13 161/16</p> <p>procedures [9] 59/15 114/8 146/22 160/1 160/13 161/10 165/9 189/1 195/6</p> <p>proceed [4] 12/17 15/14 50/1 196/5</p> <p>proceedings [10] 6/11 8/25 116/10 116/11 122/4 187/24 187/25 199/24 200/6 200/10</p> <p>process [23] 9/1 21/25 23/17 45/1 45/11 46/16 97/2 97/12 97/14 104/21 105/11 105/15 108/8 109/1 109/3 109/7 111/7 115/19 130/24 140/7 181/3 186/16 187/6</p> <p>processes [1] 46/15</p> <p>produce [1] 198/17</p> <p>produced [1] 177/4</p> <p>products [1] 21/25</p> <p>professional [4] 101/12 160/24 172/2 172/21</p> <p>proffer [6] 6/18 6/20 7/8 13/24 14/14 90/18</p> <p>proficiency [2] 49/10 176/5</p> <p>proficient [1] 48/8</p> <p>program [30] 22/23 23/19 24/4 27/22 27/23 27/24 28/3 28/7 28/7 28/10 29/9 38/10 38/25 73/9 76/9 76/13 108/20 112/4 175/3 176/11 177/10 177/14 177/25 180/3 181/4 182/2 183/20 185/8 187/12 193/4</p> <p>programs [16] 23/18 29/18 44/16 46/17 46/24 56/25 167/15 173/10 177/14 180/23 181/1 183/15 183/15</p> <p>project [3] 2/4 112/4 112/9</p> <p>projects [1] 45/7</p> <p>promote [1] 40/13</p> <p>pronouncing [1] 54/16</p> <p>proper [2] 56/1 56/2</p> <p>properly [11] 24/1 35/6 50/13 65/15 75/24 76/24 86/2 87/20 144/12 153/12 153/18</p> <p>property [3] 86/11 86/12 87/23</p> <p>propose [1] 15/4</p> <p>proposed [1] 189/10</p> <p>Prosecution [4] 111/19 116/18 117/12 120/16</p> <p>prospects [1] 77/4</p> <p>protocols [1] 57/11</p> <p>proud [1] 31/25</p>
----------	---	--

<b>P</b>	137/17	185/11 198/15
<p><b>proudly</b> [1] 52/11</p> <p><b>provide</b> [19] 31/12 36/6 38/14 38/15 47/24 48/6 52/19 53/1 53/2 60/18 66/20 73/2 79/21 80/1 101/20 144/5 145/8 177/18 184/15</p> <p><b>provided</b> [19] 6/17 6/19 15/23 27/15 38/20 41/12 41/17 43/2 61/23 68/4 69/20 98/3 121/20 150/6 174/2 177/20 178/25 188/25 191/6</p> <p><b>provides</b> [2] 150/2 181/21</p> <p><b>providing</b> [3] 77/15 89/4 189/19</p> <p><b>provisions</b> [1] 20/18</p> <p><b>proximate</b> [3] 138/7 170/19 170/24</p> <p><b>proximately</b> [1] 7/13</p> <p><b>public</b> [5] 31/3 76/14 76/22 92/9 92/20</p> <p><b>publication</b> [1] 184/17</p> <p><b>publications</b> [2] 100/15 101/12</p> <p><b>published</b> [8] 26/16 28/19 99/19 115/20 135/21 148/6 160/5 160/18</p> <p><b>pull</b> [3] 40/16 40/24 181/11</p> <p><b>pulling</b> [2] 166/3 166/7</p> <p><b>purpose</b> [2] 48/2 144/3</p> <p><b>purposes</b> [8] 13/25 26/13 41/25 85/23 87/8 155/23 177/16 197/3</p> <p><b>push</b> [1] 132/3</p> <p><b>put</b> [18] 16/19 28/9 37/3 37/21 39/4 51/17 57/3 64/19 70/19 92/3 98/22 102/8 102/19 103/2 104/6 178/13 198/22 198/23</p> <p><b>putting</b> [3] 79/4 120/25</p>	<p><b>Q</b></p> <p><b>qualification</b> [3] 163/17 176/2 176/10</p> <p><b>qualifications</b> [7] 14/9 14/13 22/6 22/9 172/21 176/11 196/16</p> <p><b>qualified</b> [12] 8/1 8/3 8/6 8/11 144/2 144/5 145/21 151/17 170/19 170/23 182/14 183/9</p> <p><b>quality</b> [1] 49/19</p> <p><b>quandary</b> [1] 65/17</p> <p><b>quantity</b> [1] 37/20</p> <p><b>quarterly</b> [1] 178/3</p> <p><b>question</b> [35] 16/3 16/10 16/16 58/7 84/24 85/23 87/8 95/9 110/21 110/25 116/6 117/7 119/24 128/24 129/1 131/10 131/12 131/15 132/17 132/20 132/21 135/16 135/18 138/2 151/8 159/5 164/7 168/8 168/12 170/10 170/18 184/1 190/4 196/24 197/16</p> <p><b>questioned</b> [2] 82/9 82/10</p> <p><b>questions</b> [27] 9/24 12/21 15/21 66/16 98/13 106/12 110/5 110/15 113/22 115/4 135/13 136/12 151/13 155/22 171/19 183/1 184/9 185/17 188/5 190/14 190/25 191/16 192/4 192/25 193/17 194/14 196/13</p> <p><b>quick</b> [1] 116/6</p> <p><b>quicker</b> [1] 186/19</p> <p><b>quickly</b> [3] 107/21 134/6 197/14</p> <p><b>QUINNEY</b> [1] 2/3</p> <p><b>quite</b> [7] 29/24 29/25 105/11 105/17 113/10</p>	<p><b>R</b></p> <p><b>raccoon</b> [1] 171/5</p> <p><b>raccoons</b> [1] 171/7</p> <p><b>radar</b> [1] 174/21</p> <p><b>raise</b> [3] 5/13 13/3 117/1</p> <p><b>raised</b> [1] 171/20</p> <p><b>ramifications</b> [1] 34/3</p> <p><b>rampant</b> [2] 142/9 142/10</p> <p><b>rapidly</b> [2] 187/11 198/15</p> <p><b>ratchet</b> [9] 102/16 102/17 103/23 120/24 121/11 121/18 132/3 141/25 142/4</p> <p><b>ratcheting</b> [4] 102/16 104/10 104/13 166/4</p> <p><b>rated</b> [3] 48/11 98/8 98/10</p> <p><b>rather</b> [3] 77/12 198/6 198/13</p> <p><b>rating</b> [6] 27/19 45/25 45/25 48/4 129/19 172/9</p> <p><b>ratings</b> [6] 44/22 148/4 172/5 172/7 172/8 172/9</p> <p><b>rationale</b> [1] 79/7</p> <p><b>RDR</b> [2] 200/4 200/17</p> <p><b>re</b> [1] 194/17</p> <p><b>re-urge</b> [1] 194/17</p> <p><b>reach</b> [1] 24/14</p> <p><b>reached</b> [6] 16/25 30/14 74/23 81/23 195/16 195/21</p> <p><b>reaching</b> [12] 17/6 17/23 58/22 59/6 59/17 60/7 69/22 70/12 73/3 77/11 81/20 173/5</p> <p><b>react</b> [7] 35/6 46/23 62/5 65/8 65/15 76/2 185/12</p> <p><b>reacted</b> [1] 87/20</p> <p><b>reactions</b> [1] 64/15</p> <p><b>reactivation</b> [1] 61/6</p> <p><b>read</b> [31] 14/20 26/12 41/24 58/24 61/13 70/14 75/10 90/8 98/2 107/12 107/25 108/10 108/22</p>

<b>R</b>		
<b>read...</b> [18] 109/9 111/8 111/10 111/17 117/11 117/14 119/14 119/16 137/2 137/6 140/4 150/13 165/20 167/2 189/25 190/7 191/24 196/16	<b>recognize</b> [3] 13/22 14/5 107/21	80/8 80/24 81/6 89/21 156/7 161/10 167/1 189/14
<b>reading</b> [4] 107/11 111/12 144/21 166/18	<b>recommend</b> [2] 16/8 154/7	189/18 194/5
<b>readings</b> [1] 108/18	<b>recommendation</b> [2] 62/20 88/7	<b>referenced</b> [2] 24/25 80/11
<b>ready</b> [2] 14/13 32/24	<b>recommendations</b> [8] 29/23 52/13 57/4 140/24 141/6 154/19 167/20 189/24	<b>references</b> [8] 17/2 21/19 24/12 24/24 32/17 79/8 94/4 94/9
<b>real</b> [5] 51/25 64/11 65/10 128/17 175/19	<b>recommended</b> [6] 51/17 54/3 70/8 70/23 71/6 88/5	<b>referencing</b> [1] 159/2
<b>real-life</b> [2] 64/11 65/10	<b>recommending</b> [1] 62/17	<b>referred</b> [6] 37/24 48/23 82/2 96/12 117/25 177/15
<b>real-world</b> [1] 51/25	<b>reconvened</b> [2] 116/11 187/25	<b>referring</b> [13] 14/1 55/8 112/24 112/25 115/15
<b>reality</b> [1] 76/2	<b>record</b> [17] 7/24 13/19 26/12 32/11 34/22 36/1 45/5 57/24 58/2 58/9 71/2 71/6 93/9 139/23 160/23 196/6 200/6	119/25 120/2 120/7 143/1 143/3 184/6 184/7 191/10
<b>realized</b> [1] 70/16	<b>recorder</b> [1] 133/12	<b>refers</b> [1] 50/22
<b>really</b> [4] 11/20 70/18 192/18 198/20	<b>records</b> [3] 55/24 55/24 73/10	<b>regard</b> [6] 9/13 15/23 18/8 75/13 86/16 193/11
<b>realm</b> [1] 21/3	<b>recover</b> [3] 61/11 114/13 114/16	<b>regarded</b> [2] 31/23 48/22
<b>reason</b> [9] 49/20 52/16 101/1 101/3 101/4 106/9 111/4 118/6 123/22	<b>recovered</b> [2] 86/10 87/21	<b>regarding</b> [20] 16/7 16/12 17/9 18/21 19/20 24/14
<b>reasonable</b> [9] 15/22 16/4 16/11 16/17 51/9 86/5 86/8 87/15 192/10	<b>recovery</b> [2] 103/6 103/8	25/20 32/10 60/1 63/4 63/11 74/15 146/8 154/6
<b>reasonably</b> [5] 82/9 145/3 166/23 169/20 170/1	<b>recurrent</b> [4] 22/17 176/9 178/2 178/5	159/11 169/21 170/2 174/24 184/3 193/1
<b>reasons</b> [5] 9/9 31/25 52/13 152/22 199/7	<b>redirect</b> [3] 3/10 171/15 171/17	<b>regardless</b> [2] 12/6 42/21
<b>reassemble</b> [1] 78/12	<b>reduce</b> [1] 9/20	<b>regards</b> [1] 43/2
<b>rebuild</b> [1] 56/8	<b>reduced</b> [1] 189/1	<b>regimes</b> [1] 40/2
<b>recall</b> [13] 18/5 33/6 41/16 111/12 113/19 116/25 119/5 119/7 119/10 137/1 186/10 187/1 194/23	<b>reduces</b> [1] 48/10	<b>regional</b> [1] 177/5
<b>receive</b> [2] 5/22 35/22	<b>redundancy</b> [1] 103/18	<b>registered</b> [1] 68/1
<b>received</b> [4] 13/11 70/5 73/10 134/2	<b>REED</b> [1] 1/12	<b>registry</b> [1] 42/21
<b>recent</b> [1] 10/12	<b>reevaluated</b> [1] 63/12	<b>regulation</b> [1] 49/21
<b>recertification</b> [1] 175/13	<b>reevaluation</b> [2] 63/13 63/15	<b>regulations</b> [5] 21/21 22/12 23/19 23/21 178/12
<b>recognition</b> [1] 60/17	<b>refer</b> [2] 54/22 81/3	<b>regulator</b> [5] 77/6 149/17 149/20 161/5 161/8
	<b>reference</b> [15] 20/17 21/20 24/20 24/22 80/5	<b>regulators</b> [13] 89/13 89/24 99/5 149/23 150/2 150/7 154/10 155/9 155/14 155/19 155/21 169/3 169/8
		<b>regulatory</b> [7] 8/8 95/24 98/18 98/18 98/20 99/22

<b>R</b>		
<b>regulatory...</b> [1] 99/25	<b>render</b> [2] 8/3 8/11	143/2 144/9 145/1 147/17
<b>rehash</b> [1] 153/20	<b>rendered</b> [2] 16/12 32/14	148/13 149/8 151/14
<b>reinforce</b> [2] 65/12 166/21	<b>renew</b> [1] 145/7	153/22 153/23 154/17
<b>reinvent</b> [2] 29/12 31/8	<b>Renton</b> [1] 156/12	154/20 154/24 155/3 156/1
<b>relate</b> [1] 22/8	<b>repeat</b> [3] 26/9 33/19	156/5 159/21 160/22 163/8
<b>related</b> [3] 72/21 73/8	48/16	163/13 172/22 174/23
159/18	<b>repeatedly</b> [2] 112/7	177/8 178/14 178/19 181/11
<b>relates</b> [4] 11/18 11/19	112/15	184/2 184/18 193/7 193/10
98/1 100/25	<b>repetitive</b> [2] 9/21 61/8	194/4
<b>relating</b> [1] 32/25	<b>rephrase</b> [1] 159/5	<b>Report</b> .....
<b>relative</b> [1] 71/14	<b>replicate</b> [2] 46/22 152/8	<b>91</b> [3] 3/22 3/23 3/24
<b>release</b> [3] 61/6 92/1 92/4	<b>reply</b> [1] 15/6	<b>Report</b> ..... 57
<b>Release</b> .....	<b>report</b> [144] 6/20 13/10	[1] 3/17
...93 [1] 3/25	15/17 17/1 17/8 17/16	<b>Report</b> ..... 13 [1]
<b>relevant</b> [12] 25/13 26/17	17/17 18/14 18/21 18/25	3/16
35/16 42/3 48/21 117/5	19/2 19/12 19/20 20/1	<b>Report</b> ..... 68 [1]
122/14 127/13 129/2 131/5	20/6 20/8 21/10 21/19	3/18
184/16 186/22	23/8 23/10 23/12 24/1	<b>Report</b> ..... 74 [1]
<b>reliable</b> [2] 72/1 139/9	24/6 24/8 24/10 24/18	3/19
<b>reliance</b> [4] 33/22 112/6	24/22 26/16 26/16 26/25	<b>Reporter</b> [1] 200/18
112/14 189/1	28/5 28/14 29/20 30/18	<b>Reporter's</b> [2] 3/11 200/2
<b>relied</b> [10] 58/13 58/18	30/19 33/9 33/16 33/24	<b>reporting</b> [2] 159/11
68/25 70/17 103/11 119/9	34/4 35/16 35/17 35/19	178/24
121/6 141/15 184/13 196/15	54/19 55/1 55/6 55/12	<b>reports</b> [21] 6/19 19/14
<b>relief</b> [8] 9/3 9/4 10/11	55/12 55/15 57/5 57/10	20/2 24/14 24/20 25/1
10/19 12/5 12/8 12/11	57/16 58/12 58/13 58/17	33/5 33/12 57/8 57/12
12/15	61/5 66/22 67/14 67/17	61/2 74/11 100/19 100/25
<b>rely</b> [18] 47/9 58/22 59/6	67/19 68/7 68/8 68/14	101/2 140/9 144/21 174/21
59/17 60/7 68/14 69/8	68/24 69/2 69/17 72/5	176/24 177/4 177/7
69/22 70/12 70/25 71/22	72/5 72/10 72/17 72/18	<b>reposition</b> [1] 166/15
73/3 73/25 74/12 75/9	73/6 73/18 74/14 75/7	<b>repository</b> [1] 178/23
81/20 100/14 104/1	77/1 82/2 94/10 94/15	<b>represent</b> [5] 82/1 82/19
<b>relying</b> [3] 100/17 100/21	94/21 94/25 95/1 95/2	89/6 91/25 130/23
141/20	95/6 95/9 95/9 95/12	<b>representation</b> [1] 131/2
<b>remedies</b> [1] 6/2	96/16 97/8 97/12 97/17	<b>representations</b> [3] 117/16
<b>remedy</b> [1] 10/15	97/18 97/22 98/1 98/14	127/1 139/24
<b>remember</b> [4] 98/15 113/14	98/17 100/22 100/23	<b>representative</b> [1] 179/7
115/6 186/9	103/19 104/25 105/4	<b>representatives</b> [1] 190/8
<b>remind</b> [1] 194/22	106/13 106/14 106/17	<b>representing</b> [1] 4/6
<b>removal</b> [1] 130/25	106/25 115/20 123/8 131/1	<b>Republic</b> [5] 18/20 19/19
<b>removing</b> [1] 79/8	133/5 133/7 134/19 140/11	54/17 67/18 94/24
	140/13 140/23 140/25	<b>request</b> [5] 9/9 12/5 73/10

<b>R</b>		
<b>request...</b> [2] 82/11 196/1	76/4 76/5 90/25 107/17	<b>right</b> [192] 4/4 9/1 10/20
<b>requested</b> [1] 9/3	107/22 109/24 110/16	12/25 13/18 14/23 15/14
<b>requesting</b> [2] 10/11 12/16	165/4 169/12 196/20	16/23 18/4 18/5 18/6 18/18
<b>require</b> [9] 78/19 99/2	<b>responded</b> [2] 10/18 77/3	20/14 21/7 21/18 23/4
99/6 125/19 125/23 135/4	<b>responding</b> [1] 166/24	25/12 25/17 28/12 32/4
136/8 162/23 164/12	<b>response</b> [3] 9/6 9/11	32/7 33/18 35/24 37/9
<b>required</b> [35] 23/22 23/22	59/16	42/23 48/21 52/22 54/12
26/19 27/16 28/6 36/5	<b>responsibilities</b> [2] 148/22	55/11 57/25 58/8 58/12
42/20 47/24 56/1 64/16	174/22	65/21 66/16 67/13 68/23
96/18 99/8 99/12 123/12	<b>responsibility</b> [3] 21/3	69/17 72/3 80/19 85/10
131/21 154/18 158/5 158/9	175/7 176/16	88/23 91/14 93/2 93/15
161/5 161/9 164/16 165/12	<b>responsible</b> [8] 54/9	95/17 96/1 96/5 96/25
167/9 168/21 168/25 169/5	138/21 147/19 148/3 176/8	97/12 99/19 105/5 106/14
169/8 169/11 175/23 177/3	178/6 178/10 178/20	106/20 112/10 114/13
177/6 178/14 182/10	<b>rest</b> [1] 47/3	114/19 115/5 115/11 116/18
182/17 191/9	<b>restate</b> [5] 110/25 132/17	118/21 118/25 121/7 121/13
<b>requirement</b> [7] 23/21	135/17 142/20 169/23	121/18 122/25 123/6
36/17 38/14 81/14 162/19	<b>restricted</b> [1] 127/3	123/12 123/16 124/10
181/14 189/23	<b>result</b> [5] 7/14 34/11 42/5	125/13 125/20 126/9
<b>requirement.'</b> [1] 77/7	45/10 175/21	126/14 127/14 127/19
<b>requirements</b> [21] 22/4	<b>results</b> [1] 107/20	129/7 129/11 129/15
24/1 24/2 47/14 60/19	<b>retired</b> [2] 147/7 180/7	129/25 131/24 132/6
74/20 76/11 78/19 112/19	<b>retrimming</b> [1] 61/9	134/16 134/21 134/23
113/4 113/5 113/7 148/4	<b>return</b> [3] 86/10 87/22	135/23 136/14 136/18
148/5 149/4 154/10 154/13	88/8	137/10 137/14 137/18
154/14 155/7 178/21	<b>reversal</b> [1] 135/11	137/19 138/2 138/13
189/15	<b>review</b> [14] 21/4 23/9	138/15 139/14 140/1 140/7
<b>requires</b> [1] 103/8	23/18 36/23 38/25 59/24	140/14 140/17 140/21 141/8
<b>requiring</b> [1] 162/16	97/8 123/18 125/10 151/21	141/12 141/17 141/25 142/5
<b>resemble</b> [1] 57/11	151/23 152/4 193/19	142/25 143/10 143/12
<b>reserve</b> [2] 9/25 10/2	193/23	143/16 143/19 143/21
<b>resource</b> [3] 45/22 46/3	<b>reviewed</b> [11] 19/15 24/11	143/24 144/10 144/18
46/7	32/16 33/2 40/9 51/16	145/3 145/4 145/19 145/22
<b>resources</b> [8] 29/25 30/1	69/10 111/4 140/15 177/3	146/9 146/16 147/1 147/9
99/18 100/14 101/5 154/23	194/3	147/17 147/23 148/13
173/25 187/10	<b>reviewing</b> [1] 23/17	148/16 149/4 149/11 149/17
<b>respect</b> [9] 7/4 7/10 8/10	<b>reviews</b> [3] 36/20 146/15	149/24 150/3 150/8
28/12 96/4 108/21 152/2	181/24	150/24 151/7 151/25 152/9
162/16 196/5	<b>revised</b> [1] 28/7	152/13 152/20 153/5
<b>respectfully</b> [2] 9/17 10/8	<b>revision</b> [1] 28/2	153/13 154/7 154/15
<b>respond</b> [12] 59/25 74/17	<b>revving</b> [1] 84/20	154/20 155/3 155/10
	<b>Richmond</b> [1] 2/18	155/19 155/23 157/2 157/4

<b>R</b>	<b>runway [2]</b> 84/15 85/10 <b>rush [1]</b> 133/19	32/20 41/19 42/14 50/7 51/11 52/5 52/11 53/25 57/15 60/11 63/2 69/9 82/5 86/8 98/4 103/16 105/4 105/11 105/12 105/17 107/1 110/23 113/10 122/8 123/21 127/5 127/17 127/22 128/9 128/10 128/18 128/19 143/8 145/1 150/5 153/8 157/17 159/9 163/8 165/11 165/16 183/24 186/1 195/4 195/10 198/2 <b>saying [13]</b> 11/20 48/4 104/20 105/13 110/18 112/16 113/21 114/3 128/15 129/17 139/9 139/12 162/5 <b>says [31]</b> 6/8 26/14 33/20 35/13 38/20 54/15 55/5 64/11 73/8 77/1 80/22 81/2 81/13 83/2 83/9 83/17 84/3 89/16 92/18 113/3 130/21 131/6 131/9 156/16 157/1 160/25 163/13 169/16 180/3 184/12 189/10 <b>scenario [2]</b> 61/25 71/7 <b>scenarios [4]</b> 64/15 70/24 71/10 169/9 <b>scene [1]</b> 174/12 <b>schedule [1]</b> 197/2 <b>scheduled [1]</b> 197/4 <b>schedules [1]</b> 198/5 <b>school [1]</b> 40/22 <b>schools [2]</b> 44/12 173/22 <b>science [2]</b> 171/25 171/25 <b>scientific [1]</b> 151/24 <b>scope [8]</b> 102/2 127/1 150/22 157/21 158/19 164/18 169/21 170/2 <b>scrambling [1]</b> 78/6 <b>scratch [2]</b> 31/9 65/18
<b>right... [43]</b> 157/25 158/6 158/11 159/12 159/23 160/3 160/7 160/15 161/1 161/17 162/21 163/2 163/11 163/13 164/9 164/12 164/13 164/25 165/5 165/9 165/13 167/12 167/17 167/20 168/22 169/22 170/3 170/18 171/13 172/24 173/12 176/21 178/3 180/7 182/24 184/9 186/6 186/20 187/9 187/23 188/1 188/20 189/7 <b>rights [1]</b> 5/23 <b>rigorous [1]</b> 49/3 <b>risk [16]</b> 16/20 56/25 76/23 84/11 84/17 84/21 84/23 85/5 85/9 85/16 85/18 86/21 86/24 87/2 87/4 197/12 <b>risks [1]</b> 85/12 <b>RMR [2]</b> 200/4 200/17 <b>role [10]</b> 67/8 67/10 75/8 94/20 101/17 108/4 113/23 113/25 125/15 158/18 <b>Room [1]</b> 200/20 <b>Roughly [2]</b> 19/14 23/12 <b>route [2]</b> 175/8 175/14 <b>Royal [1]</b> 175/22 <b>rudimentary [3]</b> 102/10 102/12 152/24 <b>rule [2]</b> 6/1 135/9 <b>ruled [1]</b> 127/2 <b>rules [1]</b> 74/2 <b>ruling [2]</b> 110/12 199/15 <b>run [1]</b> 86/23 <b>runaway [9]</b> 126/7 146/22 146/25 160/2 160/14 161/12 165/9 165/17 167/11 <b>running [3]</b> 61/7 142/8 142/10	<b>sadly [1]</b> 190/1 <b>safe [7]</b> 38/2 38/5 40/20 41/7 86/10 87/22 88/8 <b>safety [27]</b> 22/3 40/13 44/7 45/14 45/21 52/8 52/10 57/4 66/13 75/19 76/13 79/11 81/4 92/8 92/15 92/19 140/24 163/15 173/14 176/9 179/3 179/12 179/14 179/18 179/25 190/9 190/11 <b>said [36]</b> 45/5 49/15 57/6 58/13 61/2 67/6 78/22 86/12 88/11 92/6 97/1 97/7 99/18 101/8 111/5 113/9 113/11 113/23 114/15 117/1 119/16 125/13 127/17 128/18 128/18 138/21 139/18 140/4 154/22 170/15 174/7 183/2 186/11 190/6 192/5 192/15 <b>Salt [1]</b> 2/5 <b>same [22]</b> 10/23 11/2 19/25 42/15 52/5 53/19 57/14 60/11 60/25 67/20 70/22 74/10 76/19 82/21 85/15 95/9 111/23 130/7 175/18 182/7 193/14 198/12 <b>SANTOS [2]</b> 2/16 5/1 <b>sat [3]</b> 44/12 149/22 150/25 <b>satisfactorily [1]</b> 47/25 <b>save [1]</b> 196/7 <b>saved [1]</b> 78/22 <b>saw [3]</b> 30/18 70/4 99/8 <b>say [58]</b> 6/24 7/3 9/16 10/3 10/6 11/7 11/12 12/1 27/10 27/10 31/8 31/18	

<b>S</b>		
<b>screen</b> [2] 71/25 165/23	139/23 140/2 141/4 159/10	<b>she's</b> [1] 198/11
<b>Sea</b> [2] 53/8 53/13	193/7	<b>sheets</b> [3] 74/20 194/9
<b>seat</b> [1] 13/6	<b>selling</b> [1] 30/15	195/1
<b>Seattle</b> [1] 156/12	<b>Semiflight</b> [2] 43/21 44/22	<b>Shenkuh</b> [2] 4/14 4/15
<b>second</b> [12] 6/15 7/10 14/2	<b>send</b> [1] 28/24	<b>shocker</b> [3] 131/3 132/9
16/3 41/23 55/5 73/7	<b>sense</b> [4] 65/9 124/11	142/7
80/21 110/9 112/18 170/9	127/25 185/25	<b>shorthand</b> [1] 54/23
170/9	<b>senses</b> [1] 65/12	<b>shortly</b> [3] 53/8 69/5
<b>seconds</b> [3] 74/16 76/5	<b>sensor</b> [4] 71/3 103/12	86/17
107/16	112/6 112/14	<b>should</b> [28] 7/7 10/6 11/9
<b>secret</b> [3] 30/7 31/4 110/7	<b>sent</b> [1] 50/22	11/11 11/12 11/12 11/15
<b>section</b> [6] 14/8 18/2	<b>sentence</b> [8] 6/7 41/23	14/18 21/14 61/22 69/8
33/10 33/13 61/4 156/3	58/9 83/15 83/16 83/20	70/10 72/14 78/20 80/22
<b>sections</b> [4] 16/13 17/16	92/3 107/25	82/5 83/7 83/14 86/17
32/14 40/1	<b>separate</b> [6] 6/9 74/19	107/25 130/17 132/25
<b>secured</b> [1] 82/6	139/2 172/5 177/13 194/8	173/2 195/13 196/6 198/4
<b>see</b> [63] 5/4 7/11 7/15	<b>sequence</b> [2] 56/2 166/13	198/19 199/10
12/12 15/17 17/8 18/15	<b>series</b> [2] 110/4 115/3	<b>shoulders</b> [1] 50/24
18/22 19/11 19/17 19/21	<b>served</b> [2] 148/10 148/18	<b>shouldn't</b> [2] 27/10 58/4
21/4 22/24 32/16 33/4	<b>service</b> [1] 88/8	<b>show</b> [7] 7/12 18/13 77/17
46/15 49/8 54/15 55/1	<b>services</b> [1] 65/7	91/7 155/18 181/11 181/12
55/13 56/6 65/3 65/4	<b>sessions</b> [1] 70/10	<b>showed</b> [1] 155/17
65/4 65/5 66/12 72/9	<b>set</b> [29] 11/12 15/20 16/16	<b>shut</b> [1] 41/3
73/6 73/14 79/24 80/5	26/10 33/19 53/5 66/22	<b>shutdown</b> [1] 40/4
80/8 80/16 80/21 81/9	72/14 85/21 87/6 105/1	<b>sick</b> [1] 78/23
83/7 83/14 83/20 83/23	105/15 123/20 123/25	<b>sides</b> [1] 13/10
84/5 84/6 89/11 90/10	128/4 132/18 138/9 138/12	<b>sight</b> [1] 166/21
90/14 92/10 107/8 107/22	142/24 143/8 143/12	<b>sign</b> [1] 177/8
108/5 112/7 156/7 156/9	143/16 154/10 154/13	<b>signal</b> [1] 189/5
156/18 156/25 164/22	154/15 155/7 179/1 179/9	<b>signature</b> [1] 55/1
165/22 169/18 171/13 179/1	179/10	<b>Signed</b> [1] 200/15
179/18 187/15 188/21	<b>sets</b> [1] 54/3	<b>significance</b> [12] 58/25
189/17 193/20	<b>setting</b> [1] 41/25	59/9 59/20 60/10 60/24
<b>seeing</b> [1] 41/16	<b>seven</b> [1] 180/6	61/14 62/3 69/11 69/25
<b>seem</b> [3] 51/8 51/9 81/10	<b>several</b> [12] 22/24 24/19	70/15 74/13 176/22
<b>seems</b> [7] 36/9 55/12	36/5 36/22 65/11 65/12	<b>significant</b> [10] 58/18 59/1
110/12 128/8 128/15 139/1	140/20 140/24 177/17	69/1 75/1 75/4 75/11
142/10	178/13 195/15 195/21	76/12 76/17 76/25 191/22
<b>seen</b> [14] 36/13 36/16	<b>share</b> [3] 81/17 138/14	<b>significantly</b> [2] 6/10
57/7 57/12 81/24 83/21	179/12	66/12
136/23 139/14 139/21	<b>shared</b> [1] 178/25	<b>sim</b> [3] 78/5 166/12 186/12
	<b>she</b> [1] 125/16	<b>similar</b> [10] 22/24 35/11

<b>S</b>		
<b>similar...</b> [8] 48/24 60/20 67/16 68/8 82/19 91/3 91/11 182/4	50/3 64/6 70/23 162/16 173/10 183/23	148/2 148/14 149/10 149/15 149/18 151/18
<b>similarities</b> [1] 46/14	<b>since</b> [6] 11/2 14/12 17/5 20/8 60/20 67/16	151/22 152/14 153/14 153/19 154/3 154/8 156/2
<b>similarly</b> [3] 33/16 42/4 68/11	<b>single</b> [17] 20/10 30/19 30/22 40/6 57/14 103/11 103/16 104/1 104/17 112/6 112/14 119/9 120/18 121/6 121/17 128/21 141/16	156/10 156/14 157/3 157/16 158/14 159/4 159/14 162/9 163/1 163/18 163/20 164/7 165/16 168/3 168/18 171/1 171/19
<b>simple</b> [3] 40/6 71/15 164/8	<b>single-engine</b> [2] 40/6 57/14	<b>sit</b> [5] 103/14 165/11 181/25 195/2 195/3
<b>simply</b> [6] 14/14 15/4 29/22 35/21 91/7 110/17	<b>single-source</b> [2] 30/19 30/22	<b>site</b> [2] 174/14 174/16
<b>Simuflite</b> [3] 173/8 176/9 183/23	<b>sir</b> [134] 5/12 13/7 13/18 14/4 14/11 15/19 17/3 18/23 19/13 19/23 20/19 25/14 45/15 63/8 64/4 83/16 93/23 93/25 94/3 94/7 94/18 95/1 95/16 96/16 97/7 97/16 97/20 97/21 98/8 98/12 98/13 98/16 100/9 100/17 101/14 101/16 101/22 101/23 102/22 102/25 104/25	<b>sitting</b> [4] 50/16 65/17 133/20 175/19
<b>simulator</b> [78] 22/5 22/10 22/15 31/2 40/22 43/13 44/13 44/14 44/17 44/18 44/19 44/20 45/2 45/23 46/2 46/25 49/7 49/11 50/11 50/12 50/14 62/24 64/3 64/7 64/8 64/10 64/11 64/13 64/13 64/24 65/1 70/7 70/10 70/20 74/18 75/18 76/11 77/4 77/15 78/13 88/5 88/11 99/3 99/6 99/12 107/16 125/24 127/21 130/13 131/21 135/4 136/8 147/1 158/5 161/5 162/19 162/23 164/12 164/16 165/3 165/9 165/21 166/10 166/14 166/20 167/9 167/10 168/25 169/7 169/11 173/11 185/22 186/8 186/25 188/9 192/16 192/19 197/10	<b>situations</b> [6] 39/7 39/16 46/23 60/17 63/17 71/22	
<b>simulators</b> [24] 16/1 22/14 22/16 22/17 43/5 43/11 43/16 43/18 43/20 44/3 44/8 45/10 45/17 46/11 46/17 46/20 49/13 49/17	112/8 114/19 116/16 116/19 117/10 117/21 118/2 118/7 118/11 119/1 120/8 120/11 120/15 121/3 121/20 121/23 121/25 122/19 123/8 123/13 124/13 124/15 126/5 132/17 135/24 136/11 136/23 138/19 138/25 139/15 140/9 141/2 141/4 142/22 143/18 143/22 144/3 144/4 144/8 144/15 144/19 144/24 145/13 145/17 145/20 146/10 146/13 146/21 147/3 147/6 147/13 147/16 147/18 147/21 147/24	<b>situation</b> [23] 39/5 39/6 39/12 40/12 40/14 41/13 60/1 61/17 61/18 62/6 62/8 64/11 65/10 65/14 70/20 71/18 76/22 86/9 90/1 90/14 103/3 166/6 186/18
		<b>six</b> [6] 55/22 66/24 74/19 111/24 178/4 194/8
		<b>SJ</b> [1] 2/3
		<b>skills</b> [2] 79/10 163/15
		<b>skimmed</b> [1] 14/20
		<b>slim</b> [1] 69/14
		<b>slimed</b> [1] 37/16
		<b>slimed-down</b> [1] 37/16
		<b>small</b> [2] 50/17 57/14
		<b>so</b> [170] 4/6 6/4 6/9 8/6 8/9 9/13 9/21 11/18 11/18
		12/11 12/19 12/23 14/2
		14/24 16/15 18/12 19/7
		20/6 21/18 23/8 25/1
		26/24 28/8 28/12 31/4
		31/7 33/8 36/10 37/2
		38/17 39/20 39/25 43/25
		45/5 46/22 47/10 48/2
		49/20 50/2 51/11 53/22

<b>S</b>		
<b>so... [129]</b>	54/5 54/8 54/22 54/24 55/11 57/2 65/11 65/12 68/3 68/12 71/2 71/6 71/19 74/10 74/14 79/23 80/4 80/7 89/15 89/24 90/5 90/14 94/3 94/8 94/14 96/3 96/16 97/2 97/25 98/7 100/11 103/25 105/9 105/16 106/9 106/24 107/5 107/10 109/8 112/12 113/3 113/21 114/4 115/11 115/19 116/3 118/11 118/16 119/11 119/13 119/16 119/17 119/22 120/6 120/12 120/15 121/8 121/14 121/19 125/5 127/3 127/20 127/24 128/8 128/12 128/17 129/23 130/15 131/6 131/9 131/12 131/14 131/17 131/19 132/22 133/1 134/14 134/24 135/21 136/2 137/7 139/8 140/1 140/2 140/8 142/10 151/8 153/15 157/24 161/19 162/10 162/21 163/7 163/8 163/19 164/23 165/25 167/5 167/7 167/8 167/22 171/8 171/9 172/16 178/10 180/5 183/23 184/23 185/5 185/16 185/19 185/22 186/21 187/6 188/12 189/22 190/10 190/18 190/21 195/9 195/13 195/17 197/10 197/25 198/10 198/14 198/17 199/7 200/10 <b>software [2]</b>	32/13 183/3 <b>solution [1]</b>
	54/8 55/11 68/3 68/12 71/10 74/10 80/4 80/7 90/5 90/14 94/3 94/8 94/14 96/3 97/2 97/25 103/25 105/9 106/9 106/24 107/5 109/8 112/12 113/3 114/4 115/11 115/19 118/11 118/16 119/11 119/13 119/16 119/17 120/6 120/12 121/8 121/14 121/19 127/3 127/20 128/8 128/12 129/23 130/15 131/9 131/12 131/14 131/19 132/22 133/1 134/24 135/21 137/7 139/8 140/1 140/8 142/10 151/8 157/24 161/19 162/21 163/7 164/23 165/25 167/7 167/8 167/22 171/9 172/16 178/10 183/23 184/23 185/16 185/19 186/21 187/6 189/22 190/10 190/21 195/9 195/17 197/10 198/10 198/14 199/7 200/10 <b>software [2]</b>	25/7 25/12 25/16 26/3 31/1 32/6 40/15 41/3 42/24 45/2 47/11 63/24 66/8 75/2 77/14 83/3 83/10 90/2 98/13 100/17 101/11 102/15 106/12 111/3 113/22 115/4 115/14 116/3 138/20 158/25 166/19 171/19 171/21 173/5 174/18 178/7 184/9 185/17 185/25 190/14 191/2 191/16 191/20 192/3 192/25 193/17 195/23 198/16 199/12 200/8 <b>some-odd [1]</b>
	26/3 40/15 41/3 47/11 63/24 75/2 83/3 90/2 98/13 100/17 102/15 106/12 111/3 113/4 115/14 116/3 158/25 166/19 171/21 173/5 174/18 184/9 185/17 185/25 191/2 191/16 191/20 192/3 192/25 193/17 198/16 199/12 200/8 <b>somebody [3]</b>	100/11 123/24 133/14 136/12 136/16 180/7 187/9 <b>source [5]</b>
	18/9 20/11 80/13 <b>someone [7]</b>	20/10 30/19 30/22 38/18 103/16 <b>speak [6]</b>
	8/11 55/1 95/20 109/21 125/12 137/17 160/25 <b>something [40]</b>	18/6 198/14 198/15 30/6 30/7 39/9 39/17 41/5 47/13 48/23 49/13 50/1 56/4 56/4 56/5 64/23 65/19 66/5 78/24 80/22 89/6 89/9 93/8 94/17 102/23 103/14 103/22 104/14 113/1 113/9 113/12 113/14 127/7 145/9 166/13 171/7 181/12 183/13 184/2 186/21 199/1 <b>sometimes [2]</b>
	176/1 <b>specifically [4]</b>	33/6 49/7 54/6 123/5 <b>specification [1]</b>
	39/15 61/2 <b>somewhat [2]</b>	176/18 132/1 134/21 136/1 157/25 158/3 158/9 161/21 161/24 162/23 168/20 169/21 170/2 <b>speeds [7]</b>
	172/12 172/14 <b>soon [1]</b>	159/8 159/8 160/19 160/25 160/25 <b>spelling [1]</b>
	40/5 71/11 103/7 133/13 <b>sophisticated [4]</b>	30/2 44/6 <b>spend [1]</b>
	24/5 27/5 27/7 33/8 43/24 54/5 75/5 92/16 105/12 109/2 117/21 179/8 191/1	17/19 44/6 <b>spent [2]</b>
		<b>spill [1]</b>
		50/24 <b>squawks [1]</b>
		56/3 <b>stabilize [1]</b>
		62/6 <b>stabilizer [9]</b>
		126/7 146/22

<b>S</b>		
<b>stabilizer...</b> [7] 146/25 160/2 160/14 161/12 165/9 165/18 167/11	<b>stated</b> [3] 9/9 88/6 158/10	53/22 129/3
<b>Stacey</b> [3] 106/4 106/7 125/12	<b>statement</b> [90] 26/9 26/11 26/22 33/20 33/25 35/10 35/13 38/19 41/22 41/24 42/6 42/8 42/12 48/17 50/20 53/6 66/23 67/5 67/6 72/18 83/4 83/11 92/10 111/9 111/16 111/19 114/6 116/17 117/11 117/16 117/18 117/23 118/9 118/12 118/17 118/23 119/2 119/7 119/15 119/19 120/1 120/9 120/17 120/23 121/2 121/4 121/9 121/15 122/23 123/2 123/14 123/18 125/6 126/24 127/3 127/6 127/18 128/3 128/4 130/9 136/3 140/4 140/5 141/10 141/14 141/19 141/23 142/2 142/7 142/12 143/3 143/6 143/14 150/12 150/14 150/18 150/20 151/1 151/2 151/2 151/4 157/20 158/10 158/12 158/15 184/10 184/12 186/17 187/8 190/8	<b>still</b> [13] 6/16 11/1 22/17 79/9 94/6 99/2 129/16 130/6 130/10 130/13 135/4 143/1 147/8
<b>staffers</b> [1] 17/15	<b>stipulate</b> [2] 172/20 172/23	<b>stipulated</b> [1] 128/10
<b>stage</b> [9] 8/23 15/20 16/16 26/10 33/20 41/25 53/5 66/22 72/14	<b>stone</b> [1] 83/19	<b>stood</b> [1] 113/18
<b>stall</b> [2] 71/17 71/18	<b>stop</b> [7] 23/4 64/24 92/9 110/19 139/13 166/14 176/21	<b>stop</b> [7] 23/4 64/24 92/9
<b>stalls</b> [2] 160/19 160/25		<b>Storesund</b> [1] 198/23
<b>stamp</b> [1] 28/9		<b>Street</b> [6] 1/18 2/11 2/13 2/18 2/24 200/20
<b>stand</b> [2] 114/5 114/6		<b>strictly</b> [1] 127/3
<b>standard</b> [8] 9/18 9/25 10/5 22/18 44/4 46/17 54/4 174/24		<b>striking</b> [1] 194/18
<b>Standardization</b> [20] 23/3 23/5 147/4 147/25 148/10 149/8 152/5 152/8 152/13 154/19 154/24 155/3 157/8 157/13 158/4 167/25 168/19 168/25 169/4 175/2		<b>strongly</b> [1] 77/17
<b>standards</b> [10] 22/1 34/10 44/15 44/15 46/21 176/13 178/2 178/8 179/3 179/14		<b>structure</b> [6] 49/18 56/22 179/17 182/4 182/6 182/14
<b>standing</b> [8] 5/22 5/24 6/4 9/8 10/13 12/14 12/15 12/17		<b>stuck</b> [2] 42/11 83/19
<b>standpoint</b> [1] 9/1		<b>students</b> [3] 181/19 181/23 182/8
<b>stapler</b> [1] 89/2		<b>stupid</b> [1] 78/18
<b>start</b> [11] 31/9 31/15 32/6 40/3 56/10 116/3 166/15 195/9 197/20 197/25 199/2		<b>stupidity</b> [1] 78/6
<b>started</b> [5] 12/22 38/24 41/4 44/25 192/20		<b>Subcommittee</b> [2] 179/4 179/15
<b>starting</b> [3] 20/2 150/11 197/3		<b>subdivision</b> [1] 178/16
<b>starts</b> [2] 65/13 156/22		<b>subject</b> [4] 18/11 39/20 60/15 122/7
<b>state</b> [5] 13/18 127/13 176/15 176/16 179/21		<b>subjected</b> [4] 84/21 84/23 85/13 86/25
		<b>subjects</b> [5] 23/14 23/16 180/20 181/23 190/23
		<b>submitted</b> [2] 14/20 153/7
		<b>subsequent</b> [2] 20/7 43/10
		<b>substance</b> [1] 15/4
		<b>substantive</b> [1] 80/21
		<b>successful</b> [1] 114/24
		<b>successfully</b> [4] 77/18 86/10 114/13 114/16

<b>S</b>	<b>system</b> [32] 32/13 32/13 35/9 39/3 39/6 56/19 60/1 61/23 63/11 70/21 71/25 76/1 84/24 84/24 85/2 87/10 98/5 98/6 103/15 112/20 124/16 134/20 156/17 156/17 156/22 157/1 157/2 166/25 179/10 179/18 188/25 191/23 <b>system's</b> [1] 59/23 <b>systems</b> [13] 26/18 35/1 35/3 35/5 37/1 37/13 42/19 56/7 59/24 60/13 164/1 175/13 175/14	147/17 147/25 148/12 158/8 181/7 181/8 194/2 <b>talked</b> [10] 41/20 77/18 83/3 83/10 88/1 140/9 143/8 144/20 169/15 186/22 <b>talker</b> [1] 198/17 <b>talking</b> [23] 6/21 31/15 33/8 51/6 52/22 53/24 67/21 68/4 70/6 83/22 87/14 88/12 88/13 89/24 89/25 90/1 122/11 124/16 137/16 184/23 185/3 190/23 191/5
	<b>T</b>	
	<b>table</b> [2] 27/19 55/17 <b>take</b> [54] 7/19 8/15 9/5 23/9 24/7 27/18 28/2 29/8 29/17 31/10 33/13 38/8 49/12 52/7 52/16 53/10 53/22 54/12 64/17 64/19 66/10 67/2 67/13 78/21 80/4 80/7 80/20 84/13 84/20 86/15 88/2 88/19 116/2 116/2 133/1 133/2 142/17 171/7 179/17 181/3 181/9 181/22 182/8 186/1 186/7 187/10 187/22 188/13 188/20 190/1 190/7 191/7 195/13 198/9 <b>taken</b> [3] 86/18 105/20 105/21 <b>takeoff</b> [5] 40/3 40/3 53/8 66/25 69/5 <b>takes</b> [4] 88/7 133/16 134/7 174/13 <b>taking</b> [10] 7/2 53/13 74/6 84/15 86/6 86/20 93/5 106/22 182/9 196/11 <b>talk</b> [18] 20/14 32/5 32/9 42/25 62/11 62/13 83/5 83/12 84/4 84/11 106/16	<b>talks</b> [8] 21/24 22/9 48/25 78/1 89/13 107/10 127/10 142/8 <b>taught</b> [2] 65/2 76/4 <b>taxi</b> [3] 40/3 46/1 174/6 <b>taxiing</b> [1] 40/4 <b>TC</b> [1] 156/22 <b>teach</b> [4] 180/19 180/20 181/18 181/23 <b>teaching</b> [1] 180/21 <b>team</b> [8] 22/15 37/2 44/18 146/15 146/18 173/7 177/18 184/15 <b>Tech</b> [1] 177/24 <b>technical</b> [19] 31/12 77/3 77/17 80/15 108/15 109/6 109/13 109/16 109/19 109/22 111/5 111/6 111/13 117/24 149/22 150/7 158/2 175/20 184/15 <b>technicians</b> [1] 175/19 <b>Telephone</b> [7] 1/22 2/6 2/9 2/14 2/19 2/22 2/25 <b>tell</b> [18] 18/24 19/24 22/7 22/25 41/12 43/15 45/19 55/14 56/11 89/20 116/1 133/14 173/17 176/14 176/23 177/12 180/4
<b>such</b> [7] 11/14 41/13 77/18 77/20 100/14 134/9 175/25 <b>suffered</b> [1] 194/6 <b>sufficient</b> [2] 24/13 47/24 <b>suggest</b> [1] 119/23 <b>suggesting</b> [2] 88/20 142/11 <b>Suite</b> [2] 2/13 2/24 <b>sum</b> [1] 161/19 <b>summarizes</b> [1] 193/7 <b>summary</b> [1] 75/6 <b>supply</b> [1] 185/2 <b>support</b> [6] 31/12 70/18 77/23 82/4 127/18 128/6 <b>supported</b> [2] 60/17 75/12 <b>supports</b> [1] 77/25 <b>suppose</b> [1] 66/17 <b>sure</b> [22] 18/6 31/11 36/20 52/9 93/7 94/8 96/15 99/13 99/14 106/24 108/2 111/2 113/20 115/17 126/15 135/20 138/8 141/3 151/6 159/10 168/8 174/21 <b>surfaced</b> [1] 5/16 <b>surprise</b> [7] 119/18 120/15 120/20 120/22 121/1 124/3 124/6 <b>surprised</b> [2] 8/21 121/3 <b>surprising</b> [1] 103/17 <b>surrounding</b> [2] 43/11 110/8 <b>surveillance</b> [4] 173/21 174/3 175/12 176/17 <b>surveilling</b> [1] 175/8 <b>survivability</b> [3] 19/6 20/4 56/20 <b>suspect</b> [1] 159/13 <b>suspected</b> [1] 134/1 <b>switches</b> [1] 133/14 <b>sworn</b> [2] 5/14 13/3 <b>synopsis</b> [1] 20/2		

T		
<b>tell... [1]</b>	180/25	145/13 171/1 179/8 182/24
<b>telling [2]</b>	47/12 79/15	187/23 188/1 188/1 191/21
<b>tells [1]</b>	188/21	194/15 194/21 195/7
<b>temperature [1]</b>	163/22	195/25 196/23 199/9
<b>tens [1]</b>	50/25	199/14 199/17 199/19
<b>term [1]</b>	103/19	199/20 199/22
<b>terms [2]</b>	71/15 151/1	<b>Thanks [1]</b> 93/12
<b>terrorism [1]</b>	137/17	<b>that [1233]</b>
<b>test [18]</b>	31/2 45/24 48/7	<b>that's [80]</b> 7/18 8/5 8/12
	74/16 107/14 107/16	11/1 11/6 11/17 12/11 12/19
	107/16 107/19 107/20	18/4 20/6 21/20 26/9
	108/20 109/15 109/19	28/19 30/6 30/7 31/3
	109/23 127/16 127/16	31/10 31/16 34/15 36/7
	127/16 128/18 194/6	48/14 48/14 48/16 50/3
<b>testified [13]</b>	99/16 111/3	50/20 63/1 67/11 69/3
	114/10 116/16 117/15	71/2 73/17 77/19 80/25
	136/24 137/3 143/18	81/4 81/14 82/4 88/3 89/8
	144/15 145/18 152/11	89/10 90/5 91/22 96/21
	152/23 158/12	100/18 100/21 102/11
<b>testify [7]</b>	7/18 8/1 8/6	105/19 110/14 112/16 119/1
	8/6 32/24 170/6 170/13	122/5 123/1 125/6 125/14
<b>testifying [2]</b>	100/8 105/5	125/21 130/20 131/23
<b>testimony [8]</b>	7/16 15/5	135/6 136/3 141/1 147/19
	122/15 125/9 125/10 163/8	148/3 148/15 155/12
	163/9 194/19	155/13 160/22 160/25
<b>testing [1]</b>	46/24	161/6 161/13 161/16 164/13
<b>tests [2]</b>	176/5 176/5	164/23 168/7 168/8 171/7
<b>TEXAS [8]</b>	1/2 1/6 1/17	172/21 172/22 186/22
	1/18 2/14 2/24 200/18	189/25 191/9 196/18
	200/20	198/23
<b>than [19]</b>	20/13 74/16	<b>their [77]</b> 5/22 7/16 7/21
	76/9 96/19 99/11 107/16	9/9 10/18 17/16 19/6 24/1
	118/13 148/22 151/9 154/1	24/3 25/4 27/22 27/23
	155/7 165/17 167/11 186/16	27/24 28/23 29/2 29/8
	187/7 189/4 197/14 198/6	29/9 29/9 29/18 30/3
	198/13	31/13 35/5 38/12 52/7
<b>thank [38]</b>	4/17 5/10 8/14	54/18 55/20 55/20 57/4
	8/17 8/19 8/20 12/24 13/2	59/24 60/13 61/19 61/24
	15/2 15/14 21/16 109/4	63/19 67/25 68/1 77/16
	110/24 116/4 116/5 116/9	78/5 97/5 98/21 98/23
	122/17 138/17 145/5	100/18 103/5 104/14
		104/22 105/2 105/4 105/6

<b>T</b>		
<b>then... [19]</b> 163/15 171/11 172/2 175/1 176/12 177/9 180/7 181/13 181/15 182/8 183/11 188/3 188/6 195/9 196/17 197/11 198/22 199/1 199/6	189/13 189/13 191/16 191/21 194/5 194/5 195/2 195/5 195/13 195/15 <b>there's [43]</b> 11/3 11/4 11/19 14/8 18/1 19/18 21/20 25/6 28/25 36/22 41/23 53/15 55/5 65/19 72/13 72/17 76/22 80/24 81/6 83/15 103/17 105/10 105/14 109/17 109/18 120/22 121/1 122/23 123/14 136/16 137/20 138/6 140/5 141/14 141/18 141/23 142/2 143/6 143/15 156/7 169/24 171/19 185/4	26/16 37/11 40/4 47/6 47/7 70/7 82/19 84/9 86/6 88/2 94/12 101/6 101/24 111/3 114/9 116/3 127/11 127/12 133/11 136/13 142/11 147/20 173/22 174/10 174/21 174/23 179/13 182/3 193/20 194/7
<b>there [139]</b> 12/2 13/22 15/17 15/17 17/5 17/11 18/7 18/19 19/22 21/21 22/12 22/14 22/21 22/24 23/4 23/5 23/15 23/16 24/2 24/19 26/3 26/25 27/2 28/19 29/20 31/15 31/17 36/10 37/1 39/2 39/3 39/15 40/18 41/6 45/20 46/15 49/16 49/17 50/4 51/4 53/17 54/5 54/20 55/16 59/15 59/20 62/15 64/15 64/21 65/17 66/5 66/7 67/14 67/16 70/4 71/21 72/15 73/7 73/14 76/19 78/12 78/14 80/11 82/3 86/24 90/6 90/8 90/11 90/13 90/14 92/9 94/12 95/25 97/1 98/4 101/24 111/23 112/1 113/3 113/9 113/12 114/19 114/22 119/22 120/15 124/2 126/25 129/8 130/2 130/9 131/6 133/20 134/20 137/9 137/13 139/13 140/24 142/22 144/13 144/16 144/22 146/14 153/9 162/18 164/11 166/13 173/3 174/15 174/17 174/19 175/16 175/16 176/21 176/25 177/1 179/18 180/2 180/19 181/23 182/1 184/1 184/9 184/20 185/6 185/17 185/19 188/5 189/8 189/8	<b>think [99]</b> 6/19 6/23 7/6 7/10 8/5 8/10 8/25 10/12 11/6 11/17 12/11 14/9 18/1 18/4 18/18 22/25 25/18 25/24 26/3 29/24 30/18 32/11 34/21 35/11 37/24 <b>thereby [1]</b> 86/11 <b>therefore [3]</b> 59/3 61/17 166/22	<b>think [99]</b> 6/19 6/23 7/6 7/10 8/5 8/10 8/25 10/12 11/6 11/17 12/11 14/9 18/1 18/4 18/18 22/25 25/18 25/24 26/3 29/24 30/18 32/11 34/21 35/11 37/24 <b>thereby [1]</b> 86/11 <b>therefore [3]</b> 59/3 61/17 166/22
	<b>these [43]</b> 8/24 8/24 9/14 25/16 29/4 31/9 39/8 42/3 44/3 45/7 48/18 52/1 52/12 52/23 56/8 61/2 63/17 63/24 64/6 74/8 74/11 78/21 79/17 89/6 90/16 91/7 91/11 107/13 111/13 112/13 119/16 122/4 128/3 128/10 137/9 137/10 137/21 138/24 140/13 141/5 181/19 185/19 189/3	61/2 63/22 66/7 69/4 69/14 70/6 71/3 72/9 73/7 74/8 77/19 79/3 79/21 83/2 83/7 83/9 83/14 89/8 92/2 96/4 99/18 100/11 100/13 101/8 102/1 105/13 106/1 107/24 111/5 113/17 113/21 113/23 122/14 127/24 130/15 131/11 131/15 131/15 132/18 132/25 135/14 139/7 140/1 142/6 144/15 145/18 171/4 171/14 171/19 173/12 183/2 185/13 185/17 186/22 191/19 191/24 191/25 192/4
	<b>they [346]</b>	192/15 194/3 197/7 197/8
	<b>they're [18]</b> 10/11 12/16 14/21 21/24 28/24 31/10 32/1 36/20 42/18 48/12 52/16 76/20 76/22 76/23 88/11 90/1 133/16 169/5	197/16 198/10 198/17 198/19
	<b>they've [4]</b> 30/24 30/25 40/23 71/23	<b>thinking [1]</b> 93/4
	<b>thing [13]</b> 7/24 11/17 11/18 12/4 25/23 60/11 74/10 138/10 157/18 166/9 183/24 193/14 199/3	<b>third [2]</b> 1/18 16/10
	<b>things [33]</b> 6/2 13/8 19/5	<b>this [185]</b> 4/4 5/21 6/23 7/6 7/10 7/18 8/5 8/9 8/10 8/24 9/17 10/18 12/4 12/10 13/9 15/3 19/12 21/18 23/8 26/13 27/3 28/11 30/13

T		
<b>this...</b> [162] 31/19 32/11 32/21 34/21 34/22 35/7 35/11 35/17 35/24 36/2 36/17 39/18 41/4 45/6 46/8 47/3 48/17 51/13 53/12 53/20 53/24 54/16 54/25 55/2 55/5 55/11 55/15 57/10 57/16 57/19 58/10 58/13 61/4 65/23 66/22 67/5 67/13 67/17 67/24 68/7 68/14 68/16 72/3 72/5 72/7 72/14 72/17 72/18 72/22 73/1 73/18 73/20 73/23 74/14 74/20 74/21 74/24 75/1 75/6 76/1 78/2 78/7 78/22 80/16 81/19 81/24 82/6 82/7 82/8 83/2 83/3 83/9 83/10 83/15 83/23 84/1 84/1 85/23 86/7 87/8 88/6 89/12 89/17 90/9 90/19 90/21 91/22 91/22 91/23 91/25 92/5 92/17 92/24 93/5 102/1 105/15 106/24 106/24 106/25 107/17 107/19 109/1 110/2 110/10 111/23 112/16 112/24 112/25 113/24 119/14 122/4 122/14 126/12 126/13 127/7 127/23 128/3 128/3 128/9 129/4 130/21 131/2 131/15 132/5 137/16 138/9 139/1 139/3 139/9 139/11 142/15 142/23 150/10 151/11 151/19 152/22 156/4 156/17 157/17 161/25 166/6 166/12 172/10 186/23 187/6 188/14 188/16 188/20 189/24 190/25 193/24 194/3 194/18	194/18 195/4 195/5 195/5 196/6 197/22 199/5 199/7 200/15 <b>thoroughly</b> [2] 76/20 76/24 <b>those</b> [88] 9/25 10/2 11/15 12/13 16/23 16/25 17/6 19/11 21/1 21/23 25/1 26/6 26/7 33/23 37/6 39/9 40/11 40/18 40/23 46/2 47/7 47/22 48/19 49/7 49/9 54/1 56/5 57/12 62/23 64/8 64/22 66/10 66/12 71/22 73/4 78/13 79/15 84/11 92/22 94/13 100/8 100/12 100/13 100/25 101/1 101/4 104/23 107/8 108/9 108/13 108/16 115/7 121/17 127/11 139/23 140/16 140/19 146/11 146/15 147/14 150/2 152/15 152/18 153/24 153/24 153/25 155/18 165/15 165/19 169/8 171/21 173/21 174/24 175/20 176/7 176/18 177/5 177/6 178/6 181/23 183/14 190/1 190/11 191/21 192/9 193/23 196/14 200/13 <b>though</b> [9] 10/3 10/21 113/21 126/17 138/8 164/23 169/5 186/16 193/7 <b>thought</b> [7] 70/1 76/25 99/16 104/21 105/11 105/15 186/25 <b>thousand</b> [1] 78/21 <b>three</b> [5] 6/19 40/1 89/3 135/8 189/13 <b>Throckmorton</b> [1] 2/24 <b>through</b> [41] 7/12 12/13 14/18 14/20 17/6 20/5 24/23 27/12 38/9 40/21	40/21 40/23 40/25 44/12 44/13 49/7 55/13 63/24 64/2 64/7 65/11 68/7 86/4 86/23 87/15 90/8 94/3 94/13 117/14 145/12 150/25 164/1 165/19 166/21 171/21 181/3 181/9 189/20 190/8 191/25 198/5 <b>throughout</b> [1] 122/4 <b>throw</b> [1] 195/11 <b>thrown</b> [2] 50/24 133/15 <b>tie</b> [1] 151/11 <b>tied</b> [1] 61/18 <b>time</b> [53] 11/12 13/9 16/21 30/2 40/16 41/11 55/21 57/19 61/7 62/19 62/23 68/16 72/3 73/20 74/7 78/21 82/7 84/14 84/17 85/14 86/16 86/17 90/21 92/24 97/9 97/23 115/15 117/11 120/3 124/2 126/15 127/22 134/7 134/19 135/12 135/21 136/9 147/22 148/9 148/18 158/19 159/2 168/22 170/8 171/8 172/10 175/15 177/13 185/20 185/24 186/9 188/8 199/12 <b>timely</b> [1] 56/2 <b>times</b> [1] 133/16 <b>title</b> [3] 20/18 21/1 22/25 <b>today</b> [40] 4/16 5/17 5/21 5/25 6/5 7/18 7/23 8/1 8/12 15/18 16/3 16/10 16/17 18/12 25/3 26/5 32/24 47/2 69/13 70/6 75/22 76/7 77/11 81/23 83/22 87/14 91/18 92/13 96/7 97/21 100/8 103/15 122/7 125/9 127/2 165/11 173/5 190/23 195/13 199/4 <b>today's</b> [5] 6/11 13/25

**T**

today's... [3] 15/20 46/9  
117/2  
**together** [2] 37/3 102/8  
**told** [5] 70/16 78/10 122/4  
126/7 132/12  
**tonight** [1] 171/8  
**too** [3] 11/12 39/15 88/15  
**took** [12] 16/21 49/12  
49/15 49/20 50/3 58/24  
74/16 84/23 99/11 107/15  
129/3 187/6  
**top** [3] 30/6 31/4 55/5  
**topic** [2] 67/6 96/1  
**topics** [2] 19/3 23/1  
**totaling** [1] 51/7  
**touch** [2] 49/9 198/25  
**touching** [2] 66/8 166/2  
**tough** [1] 95/4  
**towards** [2] 14/7 55/4  
**tox** [1] 56/16  
**trace** [1] 86/4  
**traced** [1] 87/15  
**TRACY** [4] 2/10 4/9  
195/15 195/19  
**traffic** [1] 177/20  
**train** [3] 48/15 49/9 103/6  
**trained** [26] 22/11 24/2  
34/19 34/20 43/19 48/3  
50/13 59/23 70/19 76/20  
76/24 76/24 85/1 85/1  
87/20 126/9 143/25  
144/13 146/25 161/13  
161/17 163/2 163/10  
163/20 165/8 166/22  
**training** [254]  
**trainings** [2] 63/25 64/7  
**transcribed** [1] 200/10  
**transcript** [3] 1/11 200/5  
200/12  
**transcripts** [1] 137/2  
**transitioning** [4] 51/14

70/9 75/17 77/16  
**transmitted** [1] 30/5  
**transmitting** [1] 32/1  
**transport** [8] 19/19 22/2  
22/4 57/15 67/18 81/6  
172/4 182/22  
**Transportasi** [1] 54/17  
**transportation** [5] 17/19  
72/12 72/19 177/19 177/20  
**traveled** [1] 4/16  
**traveling** [1] 198/6  
**travels** [1] 22/15  
**tremendously** [1] 50/15  
**trial** [7] 116/20 117/1 117/8  
125/10 136/25 137/2  
150/25  
**tricked** [1] 78/20  
**trickle** [2] 34/17 35/25  
**trickle-down** [1] 35/25  
**tried** [2] 76/6 78/11  
**tries** [1] 77/6  
**trim** [3] 61/6 65/4 69/6  
**trims** [2] 41/14 133/15  
**Triple** [1] 182/6  
**true** [3] 42/15 150/15  
200/5  
**trustworthy** [2] 57/17  
68/11  
**truth** [1] 139/6  
**truthful** [1] 52/19  
**truths** [2] 33/21 92/6  
**try** [5] 95/4 152/7 173/2  
197/18 198/4  
**trying** [15] 25/2 65/18  
68/13 73/2 78/18 99/17  
101/12 105/2 127/7 127/9  
134/2 136/17 182/15 185/8  
189/22  
**turn** [10] 32/4 39/20 42/1  
42/23 58/12 107/6 111/23  
153/7 169/16 183/1  
**Twenty** [1] 180/10

**Twenty-four** [1] 180/10  
**two** [52] 5/16 11/19 40/7  
42/24 44/6 44/21 49/12  
49/15 50/3 51/12 61/1  
66/10 66/12 73/12 76/3  
79/15 79/20 88/2 88/3  
88/23 88/25 89/1 89/1  
90/9 90/16 91/16 91/19  
92/22 100/12 100/13 110/2  
112/3 117/24 121/17 123/3  
133/4 137/25 139/3 145/3  
153/9 153/16 153/18 172/8  
172/8 182/18 184/14  
187/20 188/22 191/17  
192/9 197/4 198/22  
**two-page** [4] 88/25 89/1  
89/1 187/20  
**type** [30] 19/12 20/1 27/16  
44/22 45/24 47/23 48/3  
48/11 53/19 54/8 56/23  
57/2 68/14 73/2 73/17  
81/21 98/8 98/10 144/25  
148/4 148/25 150/1 156/7  
166/9 172/7 172/8 172/8  
172/9 177/16 182/21  
**types** [5] 29/20 31/9  
111/13 164/11 182/2  
**typically** [1] 137/13

**U**

**U.C** [1] 197/12  
**U.S** [4] 20/18 72/18 99/6  
125/24  
**U.S.** [13] 26/20 27/6  
27/6 27/9 28/12 42/2  
42/11 42/18 51/19 52/6  
122/20 126/7 126/8  
**U.S.-based** [12] 26/20  
27/6 27/6 27/9 28/12  
42/2 42/11 51/19 52/6  
122/20 126/7 126/8  
**U.S.-manufactured** [1]  
42/18

<b>U</b>		
<b>Uh</b> [2] 73/15 197/5	184/13 196/10	151/11 152/12 161/19
<b>Uh-huh</b> [2] 73/15 197/5	<b>undertake</b> [1] 193/19	167/22 172/25 174/14
<b>ultimate</b> [1] 138/1	<b>undisputed</b> [1] 53/6	179/9 179/10 181/11 181/13
<b>ultimately</b> [5] 88/19	<b>undo</b> [1] 9/4	183/2 183/23 184/2 185/8
137/25 186/7 188/9 191/13	<b>undoing</b> [1] 12/9	192/1 195/9 195/13 196/21
<b>unable</b> [1] 61/10	<b>unfair</b> [1] 110/6	199/3
<b>uncommanded</b> [7] 41/10	<b>unfairly</b> [1] 110/13	<b>update</b> [2] 189/14 189/23
41/14 41/15 74/17 107/22	<b>unfamiliar</b> [2] 112/5 112/13	<b>updates</b> [2] 189/8 190/1
183/8 183/13	<b>unique</b> [1] 44/20	<b>updating</b> [1] 161/9
<b>under</b> [14] 10/5 10/6 10/13	<b>unit</b> [1] 176/4	<b>upon</b> [4] 47/9 55/6 73/3
11/1 11/22 28/24 43/22	<b>unitary</b> [1] 10/2	81/20
44/9 74/2 85/18 85/19	<b>UNITED</b> [23] 1/1 1/5 1/12	<b>upper</b> [2] 80/6 80/8
112/2 164/21 172/9	1/17 1/20 4/5 5/8 5/23	<b>urge</b> [1] 194/17
<b>under-type</b> [1] 172/9	29/14 46/4 56/14 80/25	<b>us</b> [18] 6/21 10/9 19/24
<b>undercut</b> [1] 77/23	92/1 92/3 93/1 95/14	22/7 26/9 43/15 47/12
<b>undermined</b> [1] 76/13	110/3 116/20 116/25	55/14 71/8 78/10 79/15
<b>underscore</b> [1] 35/11	125/20 136/25 175/15	176/14 176/23 177/12
<b>understand</b> [36] 10/21 11/7	200/14	179/25 180/25 185/25
11/23 16/24 20/20 30/21	<b>UNIVERSITY</b> [2] 2/4 2/5	188/21
49/2 51/18 54/18 66/5	<b>Unless</b> [1] 182/14	<b>use</b> [22] 18/9 22/6 22/10
69/19 70/7 70/21 71/8	<b>unlimited</b> [6] 102/17	22/18 23/18 23/23 24/3
88/10 95/16 105/3 120/6	120/25 121/11 121/18	28/23 36/10 37/23 41/8
122/9 122/15 129/3 129/25	141/25 142/4	44/18 46/17 49/25 50/13
131/11 136/16 136/17	<b>unpack</b> [4] 43/16 43/24	71/25 71/25 152/11 152/18
138/16 150/24 153/3	84/19 191/4	161/25 178/5 195/1
157/18 163/19 168/8	<b>unscrew</b> [1] 78/6	<b>used</b> [7] 37/25 68/6
168/13 172/15 175/1 177/9	<b>unstable</b> [1] 39/9	103/19 113/15 113/17
194/20	<b>unstinting</b> [1] 88/7	113/19 184/4
<b>understanding</b> [35] 17/18	<b>until</b> [5] 103/24 171/9	<b>useful</b> [1] 171/20
17/21 17/22 36/3 36/4	174/16 174/19 198/20	<b>uses</b> [1] 38/15
45/9 45/14 61/5 72/22	<b>unusable</b> [2] 16/14 32/15	<b>using</b> [2] 77/20 191/11
73/17 85/2 86/3 87/13	<b>unusual</b> [4] 103/2 103/3	<b>usual</b> [1] 19/3
89/17 98/25 102/10 102/12	103/6 103/6	<b>usually</b> [10] 37/18 40/6
103/13 114/22 115/24	<b>unwarranted</b> [1] 16/20	40/22 41/2 48/14 49/24
117/10 119/1 124/13 124/18	<b>up</b> [51] 4/20 8/16 13/6	57/2 57/3 144/25 174/15
124/21 124/23 125/1	13/8 33/1 34/11 36/25	<b>UTAH</b> [3] 2/4 2/4 2/5
125/16 131/16 152/4	40/16 40/24 41/3 41/8	<b>V</b>
152/24 184/24 185/1	44/4 50/17 51/7 55/4 56/4	<b>vague</b> [1] 67/5
185/13 191/11	57/3 63/15 65/14 79/21	<b>valid</b> [1] 79/9
<b>understands</b> [1] 10/1	82/19 84/9 84/20 89/19	<b>validation</b> [2] 156/8
<b>understood</b> [3] 139/23	97/5 101/10 104/23 116/3	156/22
	122/11 129/20 133/3 134/8	<b>vane</b> [9] 104/2 104/17

**V**

**vane...** [7] 120/18 121/6  
121/17 132/4 132/5 141/16  
141/21  
**variant** [4] 27/13 27/17  
28/11 88/14  
**variants** [1] 48/5  
**variation** [4] 47/21 47/21  
48/1 48/14  
**variations** [3] 30/24 48/10  
49/8  
**varies** [1] 40/15  
**various** [7] 17/16 20/17  
21/21 21/23 40/2 180/20  
195/20  
**vary** [1] 39/23  
**versed** [1] 114/7  
**version** [7] 26/15 35/15  
37/17 47/16 69/20 97/18  
98/10  
**versus** [2] 50/16 62/14  
**very** [30] 4/12 5/6 5/21  
6/18 12/20 21/22 37/13  
38/13 48/18 57/2 58/10  
59/1 69/14 71/3 71/15  
71/17 71/20 84/6 102/10  
102/10 102/12 128/25  
133/13 139/16 142/10  
142/13 163/24 191/22  
198/7 199/23  
**via** [1] 200/9  
**Vickie** [2] 63/23 65/23  
**victim** [6] 6/7 10/6 10/6  
10/22 10/25 11/24  
**victims** [3] 6/2 7/13  
195/21  
**victims'** [1] 6/20  
**videoconferencing** [1]  
200/10  
**view** [9] 5/21 6/4 7/25  
24/14 29/22 96/3 96/7  
96/21 100/11

**violated** [2] 112/19 113/3  
**violation** [5] 10/14 12/7  
12/7 21/6 176/19  
**VIP** [1] 177/16  
**VIP-type** [1] 177/16  
**Virginia** [2] 2/18 175/22  
**visceral** [1] 65/9  
**visual** [2] 165/25 166/1  
**voice** [1] 133/12  
**VOLUME** [1] 1/11  
**vouching** [1] 139/5

**W**

**wait** [1] 7/11  
**walk** [4] 14/18 17/6 94/3  
94/13  
**want** [61] 4/14 14/19  
14/25 18/18 25/22 25/23  
26/9 26/10 32/5 32/9  
34/22 35/2 35/25 36/9  
37/16 38/19 39/20 40/12  
41/22 42/23 45/5 47/7  
48/16 50/19 52/9 52/23  
54/12 62/13 63/16 64/2  
83/4 83/11 84/4 84/13  
85/21 85/23 86/15 87/6  
87/8 88/2 90/8 92/2  
94/13 119/19 138/19  
139/22 153/7 164/5 169/16  
171/10 174/19 183/1 186/5  
187/14 193/3 195/10 195/11  
196/14 197/25 198/4  
199/13  
**wanted** [7] 17/4 18/13  
20/11 25/17 83/16 187/11  
190/5  
**wants** [1] 90/20  
**warranted** [2] 15/25 43/4  
**was** [284]  
**Washington** [4] 1/21 2/21  
156/12 177/15  
**wasn't** [3] 18/6 103/20  
119/19

**way** [25] 6/6 8/9 15/3  
18/16 20/21 21/9 31/12  
48/9 57/8 65/7 70/18  
79/3 83/6 83/13 103/23  
132/3 132/24 134/21 150/5  
166/18 178/15 189/25  
193/24 194/7 196/9  
**we** [190] 4/6 4/19 4/21  
6/3 6/8 6/10 6/15 6/16  
6/17 6/22 6/23 7/5 7/6  
7/11 7/15 7/15 7/22 7/24  
8/5 8/9 8/10 8/23 8/24  
9/1 9/6 9/8 9/13 9/16 9/23  
10/1 10/2 10/17 11/9 11/11  
11/12 11/12 12/6 12/7 12/21  
15/3 15/9 15/16 20/14  
21/10 24/5 32/5 32/6 32/6  
41/7 44/6 44/10 44/17  
44/22 45/1 45/5 45/6  
49/21 50/23 51/24 52/11  
53/24 54/25 55/11 56/16  
56/16 58/1 66/17 67/21  
68/3 68/8 73/6 74/8 77/5  
79/21 79/23 79/24 80/21  
80/22 82/10 83/5 83/7  
83/7 83/12 83/14 83/14  
89/19 90/14 90/19 91/11  
91/19 93/9 93/23 94/1  
94/2 94/7 103/5 106/23  
110/5 110/9 110/15 111/16  
111/22 115/14 116/2 116/7  
118/3 120/12 133/21 133/21  
138/2 142/8 143/1 151/13  
158/25 161/19 161/25  
162/12 162/14 168/12  
168/18 168/24 169/3 169/7  
171/8 171/14 172/23  
173/23 174/2 174/2  
174/23 174/23 174/24  
175/11 175/11 175/14  
175/16 175/18 176/15  
177/14 177/17 177/18

<b>W</b>		
<b>we...</b> [49] 177/20 178/10 178/23 178/23 179/16 179/21 179/21 179/21 179/22 179/22 180/3 180/5 181/3 181/7 181/8 181/9 181/11 181/11 186/12 186/22 187/3 187/15 187/22 188/2 188/2 188/3 190/23 191/12 191/21 193/19 193/24 194/2 194/3 194/4 194/11 194/17 195/9 195/13 196/5 197/4 197/11 197/18 197/19 198/3 198/4 198/6 198/21 198/22 199/2 <b>we'd</b> [2] 169/11 172/20 <b>we'll</b> [4] 25/15 42/23 53/2 65/22 <b>we're</b> [15] 9/25 57/10 63/23 74/6 91/7 110/13 122/7 128/23 137/16 171/4 172/22 184/23 197/3 197/9 197/24 <b>we've</b> [13] 5/19 6/19 52/22 66/2 83/3 83/10 87/14 88/1 122/4 124/16 143/8 169/15 185/3 <b>wearing</b> [1] 200/9 <b>weather</b> [3] 19/4 20/4 56/12 <b>week</b> [2] 133/4 197/22 <b>weekend</b> [2] 198/5 199/23 <b>weeks</b> [3] 63/23 65/23 134/15 <b>weigh</b> [2] 196/12 197/21 <b>welcome</b> [1] 159/20 <b>well</b> [47] 7/23 8/1 16/23 24/19 25/15 32/4 32/12 34/25 38/23 47/11 48/19 50/11 52/22 53/2 53/3 53/19 61/12 65/16 65/18 67/25 69/16 73/14 75/4	78/24 88/8 91/8 103/2 105/13 110/7 114/7 116/1 117/4 132/18 139/9 139/21 158/21 159/1 159/7 168/3 182/24 185/18 186/21 187/15 196/20 197/18 198/19 199/22 <b>well-ingrained</b> [1] 65/16 <b>well-versed</b> [1] 114/7 <b>went</b> [8] 20/4 24/23 44/13 45/22 159/22 171/23 177/2 185/19 <b>were</b> [140] 6/1 7/13 10/23 11/8 11/9 11/10 18/1 18/7 19/8 24/17 24/19 25/13 31/23 35/17 41/2 42/4 43/22 43/25 44/3 45/4 45/6 45/14 46/2 46/3 47/12 49/12 50/4 53/24 57/1 58/18 59/12 59/15 60/22 61/12 61/17 62/1 62/23 67/1 67/9 67/21 67/23 68/4 68/9 69/1 69/6 69/7 69/14 70/6 74/11 74/23 75/20 76/15 77/8 77/21 78/24 79/12 79/14 79/17 83/22 84/21 84/22 84/25 85/12 85/14 86/24 88/13 88/20 90/15 91/5 93/4 94/17 95/14 97/11 98/3 98/13 105/13 106/12 108/16 108/18 108/20 109/10 109/11 109/12 113/5 113/21 113/22 114/3 115/3 116/16 118/9 119/8 125/2 128/5 130/8 137/9 139/11 139/19 140/6 140/10 144/12 153/9 153/11 163/25 165/8 165/25 173/14 174/8 175/2 175/19 176/6 176/12 177/6 177/9 178/10 178/23 182/14	182/14 183/3 184/6 184/11 184/20 185/7 185/19 188/5 190/1 190/4 190/11 190/14 190/25 191/5 191/16 191/17 191/18 191/21 191/25 192/25 193/17 194/2 194/7 200/10 <b>weren't</b> [1] 106/19 <b>what</b> [274] <b>what's</b> [14] 13/21 54/13 65/9 72/22 107/6 109/21 109/25 117/18 124/18 125/6 133/1 135/16 143/3 184/10 <b>whatever</b> [7] 7/8 11/13 129/19 132/22 191/12 195/9 198/6 <b>wheel</b> [2] 29/12 31/9 <b>wheels</b> [1] 65/4 <b>when</b> [44] 24/18 31/7 31/15 31/18 32/6 37/6 38/24 47/15 62/16 63/18 65/12 65/23 66/6 78/11 84/14 85/16 88/11 91/11 91/23 92/4 103/4 112/5 113/21 117/11 126/11 129/4 131/6 134/7 134/14 136/16 139/11 149/7 151/13 157/17 160/24 181/7 182/9 182/10 184/4 184/23 185/7 191/5 191/8 192/20 <b>whenever</b> [1] 128/21 <b>where</b> [35] 12/2 12/11 21/4 31/16 34/13 40/18 41/19 56/4 64/15 70/20 71/21 71/23 76/3 76/22 79/17 82/4 89/17 90/14 95/19 105/4 111/12 111/16 111/17 119/8 137/3 138/24 139/24 156/22 177/24 181/18 181/25 183/18 186/11 195/1 195/2

<b>W</b>		
<b>whereby</b> [1] 179/11	<b>whole</b> [4] 34/25 48/12 120/3 145/12	132/23 135/1 136/4 138/10 138/11 141/20 142/3 157/17
<b>whether</b> [35] 10/5 11/4 12/6 18/15 37/16 57/14 58/18 68/25 68/25 89/13 99/5 99/10 108/15 108/19 108/23 109/5 113/6 119/5 120/17 136/24 150/6 168/13 169/19 169/24 182/5 182/5 182/16 188/7 190/4 190/14 191/1 191/1 191/2 193/1 196/5	<b>whose</b> [3] 4/14 92/15 184/24 <b>why</b> [27] 20/11 34/22 42/17 43/15 43/25 50/3 50/10 50/10 52/13 53/17 56/12 58/3 63/16 67/23 71/9 75/4 102/6 103/1 104/20 105/9 116/1 128/20 144/23 183/12 192/17 196/8 198/25	157/19 164/19 168/20 <b> withhold</b> [1] 130/5 <b> withholding</b> [6] 16/12 32/10 35/14 63/3 137/23 151/5 <b>within</b> [14] 36/22 37/5 37/13 55/22 68/1 99/2 100/18 100/22 133/4 134/9 135/8 166/24 176/16 178/18
<b>which</b> [59] 9/3 9/4 10/17 13/10 14/9 17/1 21/19 27/19 33/20 37/19 41/24 44/21 46/1 48/12 49/24 50/23 59/12 61/22 65/7 69/19 71/13 72/7 72/9 84/25 88/4 94/23 95/8 106/23 111/5 112/19 112/22 117/3 119/24 126/15 126/24 130/3 130/9 133/12 133/15 133/15 140/11 140/25 150/12 153/10 153/25 155/2 156/4 166/6 166/10 166/20 174/5 174/5 177/14 178/2 178/17 188/13 188/25 192/11 196/16	<b>WICK</b> [1] 2/23 <b>will</b> [79] 8/15 9/16 12/17 13/12 13/25 14/20 20/14 29/5 29/17 32/5 32/6 35/2 38/8 38/9 38/12 39/23 39/23 39/24 40/1 40/2 40/10 40/10 41/1 41/10 46/1 48/15 50/23 53/1 54/22 56/3 56/21 56/22 57/21 60/14 66/17 68/20 71/12 74/3 77/5 77/5 79/24 82/1 82/16 82/19 82/21 82/23 89/6 91/4 91/25 93/2 93/7 93/11 95/4 110/23 116/25 117/4 117/5 122/16 131/14 145/11 151/11 156/1 157/16 159/5 161/25 166/4 171/8 172/23 173/12 181/13 188/3 195/9 196/19 196/20 196/21 197/11 197/18 198/21 199/12	<b>witness</b> [25] 3/4 4/18 4/19 4/20 5/11 7/17 7/18 7/23 7/25 8/2 8/9 8/10 11/21 12/23 53/1 66/19 72/4 110/7 110/17 116/7 122/10 129/4 130/17 145/8 196/7 <b>witness's</b> [3] 122/15 131/13 194/18 <b>witnesses</b> [6] 5/20 7/8 9/2 82/11 197/4 198/16 <b>won't</b> [1] 199/15 <b>wonder</b> [2] 14/7 174/7 <b>wondering</b> [10] 10/21 15/3 37/16 42/12 65/17 128/2 128/20 188/13 191/4 192/17
<b>while</b> [6] 4/21 76/5 96/3 111/22 145/7 174/13	<b>WILLIAMS</b> [3] 200/4 200/17 200/17	<b>word</b> [6] 3/12 113/15 113/17 190/25 191/5 192/4 <b>words</b> [4] 23/20 42/11 98/5 161/25
<b>who</b> [30] 4/6 4/8 6/11 9/2 27/25 28/23 36/20 47/7 50/25 54/1 54/9 54/18 55/11 77/6 90/15 92/21 94/20 95/5 95/11 106/16 108/12 112/12 117/24 118/9 138/11 138/24 147/7 182/8 195/16 197/9	<b>wind</b> [1] 71/14 <b> withheld</b> [27] 34/6 38/23 118/9 118/14 118/19 118/25 121/5 121/10 122/25 123/4 124/9 124/24 125/3 126/20 129/9 130/12	47/3 47/19 56/5 83/6 83/13 109/23 153/2 190/19 <b>worked</b> [20] 8/2 21/2 30/25 43/20 95/16 99/21 99/24 106/2 106/4 109/7 138/24 138/25 143/21
<b>who's</b> [4] 6/16 8/11 55/1 63/24		
<b>Whoever</b> [1] 7/2		

**W**

**worked...** [7] 147/23  
148/19 149/10 149/16  
153/3 190/15 190/16  
**working** [5] 12/12 20/23  
44/6 49/12 191/25  
**works** [1] 147/8  
**world** [13] 22/15 29/15  
51/25 54/4 54/4 86/7  
87/16 89/14 98/14 131/7  
132/13 174/4 175/10  
**worldwide** [1] 90/4  
**WORTH** [6] 1/3 1/6 2/24  
178/4 200/19 200/20  
**worthiness** [1] 20/4  
**would** [395]  
**wouldn't** [8] 42/14 128/12  
128/20 162/2 186/4 186/15  
192/15 192/18  
**wrap** [2] 84/9 196/21  
**wrapping** [1] 167/22  
**wreckage** [1] 174/20  
**write** [2] 56/4 153/9  
**writing** [2] 65/19 77/4  
**written** [3] 73/9 165/20  
196/18  
**wrong** [3] 64/23 64/25  
166/13  
**wrote** [3] 78/4 78/20 79/6

**Y**

**yeah** [18] 13/24 45/4  
72/24 73/19 92/23 101/11  
102/14 104/11 140/1 140/22  
145/10 167/4 170/11 187/5  
187/15 187/21 195/7  
196/25  
**year** [4] 25/9 55/22 88/3  
133/4  
**years** [16] 19/9 19/11  
20/23 36/14 44/6 49/12  
49/15 50/3 95/17 133/4

145/19 180/6 180/6 180/10

180/13 183/16

**yes** [237]

**yesterday** [3] 117/14

119/14 199/6

**York** [3] 1/21 2/8 2/8

**you** [684]

**you'd** [6] 148/21 153/3

154/9 158/21 161/19 163/1

**you're** [35] 10/4 10/23

11/1 12/1 15/18 20/20 25/3

26/5 36/3 43/6 43/24

47/2 68/14 69/12 73/3

77/10 85/9 99/14 100/21

105/3 120/1 128/2 128/15

129/17 136/17 136/20

145/21 146/11 146/21 150/1

164/24 164/25 171/11

182/5 182/5

**you've** [39] 14/20 14/21

25/24 30/4 46/10 47/3

51/4 55/8 64/2 64/6 76/7

79/2 81/21 92/12 101/23

102/23 103/19 111/3 111/4

126/18 132/23 139/14

144/15 145/18 145/24

146/2 146/5 146/18 146/25

149/10 149/13 149/16

149/19 149/22 159/10

170/18 171/9 173/5 174/7

**your** [278]

**yourself** [1] 164/23

**Z**

**Zekarias** [1] 4/14

**zero** [2] 83/8 83/15

**ZOIE** [3] 200/4 200/17

200/17

**zwilliams.rmr** [1] 200/21